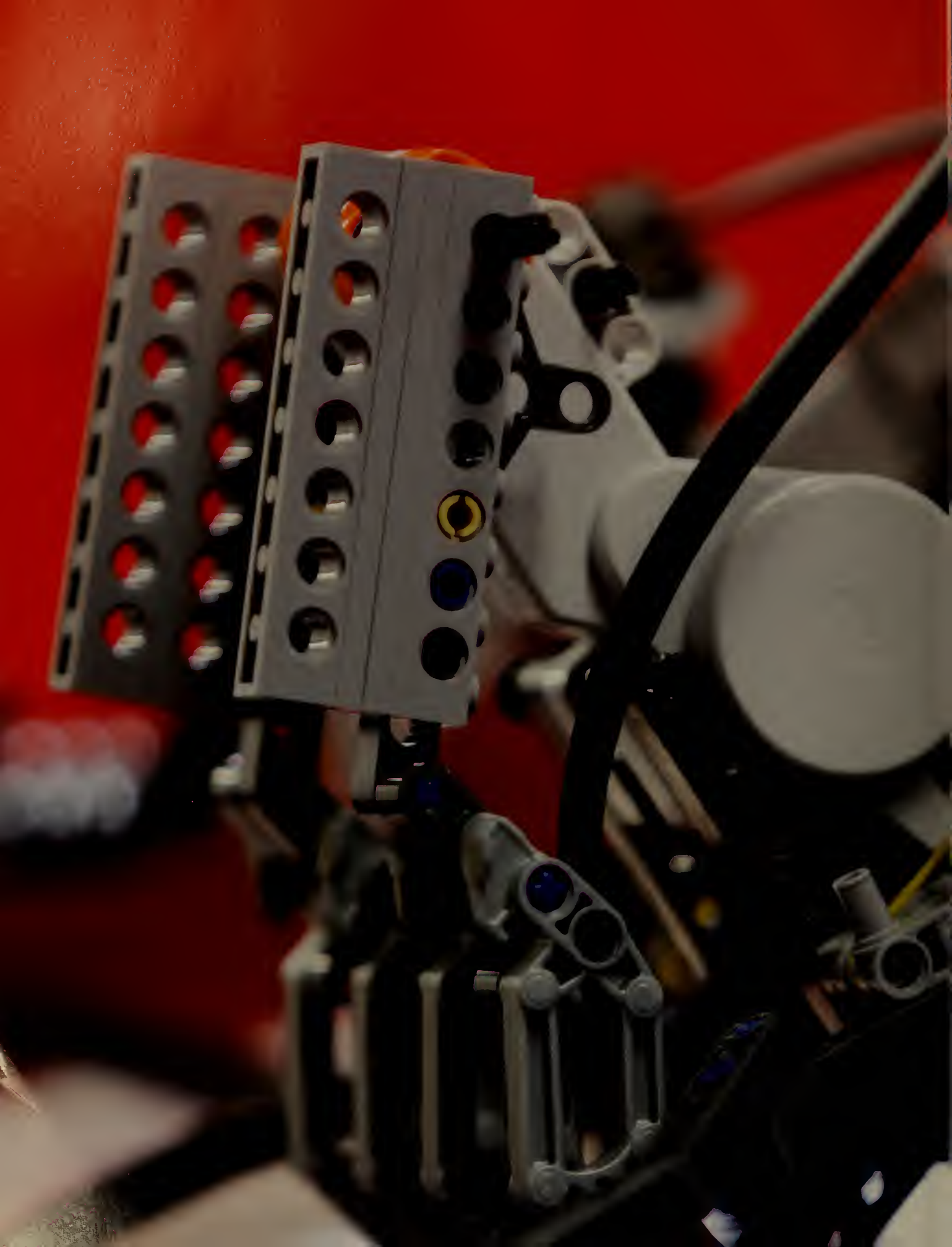
WPI transformations

SUMMER 2009

A JOURNAL OF PEOPLE AND CHANGE



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About the Cover

Whereas purpaseful, elegant design is created by artists and engineers alike, there are myriad illustratians af the beauty af design in nature. One such example is the nautilus shell, whase chambers are arranged in an approximate lagarithmic spiral.

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WPI transformations

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A JOURNAL OF PEOPLE AND CHANGE

"Design is where science and art break even."

—Robin Mathew

When I was in middle school, I aspired to be an architect. I was fascinated by blueprints and I would continually revisit the sketch of the house my parents had built some years before. Enamored by Frank Lloyd Wright, I somehow amassed a collection of books detailing his work. And when I was sick of practicing the piano or bored with Barbie, I would sketch out one-dimensional residential floor plans. (They were fairly functional homes, although I would sometimes forget the bathroom.)

The beauty of design is that it bridges technical with creative, science with art, left brain with right brain. And the same can be said about WPI. Just look at our innovative curriculum, in which students take a humanistic approach to engineering and science. Or our musical and theatre productions, in which students find an outlet for their many talents. Or the myriad humanities projects, in which students channel their creative energy into purposeful projects. Last year, for example, Damien Kane Rigden '08 painted a beautiful portrait of the WPI campus—with panels depicting different aspects of campus life—which now hangs in the Goat's Head Restaurant.

True, design means something different to everyone and every field. But that's what has enabled us to share the stories of so many alumni, students, and faculty across a broad range of disciplines and industries in this issue of *Transformations*. In some way, shape, or form, each person featured in this magazine is involved in designing things—medical devices and video games, city streets and buildings, brand names, and WPI's newest major, robotics.

There's more: faculty research focuses on artificial intelligence in design and a student project in Hong Kong looks at redesigning the city's waterfront to make it more functional and aesthetically pleasing.

In designing this edition around, well, design, we also took the opportunity to refresh the look and feel of the class notes section. After all, we couldn't let this designer issue go by without a little redesign ourselves.

Thanks for reading.

Charna Mamlok Westervelt, *Editor*

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Pride for All Things WPI

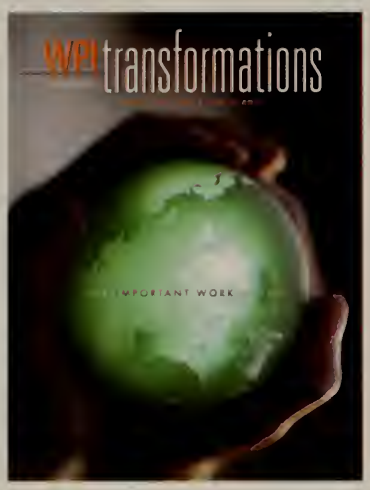
I am a graduate of WPI, Class of '53, and was quite pleased with the current document [winter '09 *Transformations*]. Frankly, I have always been, especially when I compare the material to that which comes from other universities where I was also degreed—University of Michigan, Harvard University, and Vanderbilt University. All was quite professional and well done.

Worthy of note was the spectacular message from President Berkey and how it ties in so well with America today, as we are guided by our new President, Mr. Obama.

Also worthy of note is Bill Grogan, ["Honoring a Man, a Plan," winter issue] who I knew personally while attending WPI from 1949 to 1953. There was no question in our minds, our class, as to what this person would mean and represent to WPI as he lived his professional life. He is one of the many important anchors of the school and the traditions it represents.

Thank you for the excellent reading opportunity!

Philip E. Simon '53
Vista, Calif.



Where in the World?

I am puzzled. Do we live on the same planet? I have been unable to match what appear—on the front cover of the winter '09 publication—to be continents on the globe held in someone's hand with continents I find on current maps of planet Earth. There seem to be some similarities in places, but relationships do not continue to match. Alternatively, the presumed continents do not agree with what I have seen as resulting from early breakup of Pangea or with projections of future continental drift. Where are we!? I found no comment or description of the front cover anywhere in the magazine.

Please elucidate when you have time.

Earl C. Klaubert '52
Northwood, NH

Editor's note: The image used on the cover of the winter '09 *Transformations* was not intended to be taken as a literal interpretation of planet Earth. Rather, it's an editorial comment to express the care we must take to repair a world that faces economic turmoil, energy and health crises, and war—to name a few—and the important work we must do to solve some of these global issues. So, where are we? We are here. Together. Making a difference in the world. Or, as my father likes to say, "Wherever you go, there you are."

One of Two

I just found "The Women of WPI" article online [spring '08 *Transformations*]. I work at the Volpe Center in Cambridge, and in the past three weeks we hired two new female employees—both graduated from WPI. (I was looking for pictures of our first female class to show to them and found the article.) In our group of 30 engineers, six are female, and now three of us have WPI connections!

Jayne Rossetti Granville '72
Cambridge, Mass.

< In the fall of 1968, Jayne Rosetti (left) and Lesley Small were the first female undergraduates to enroll at WPI, both math majors.

A message from President Berkey

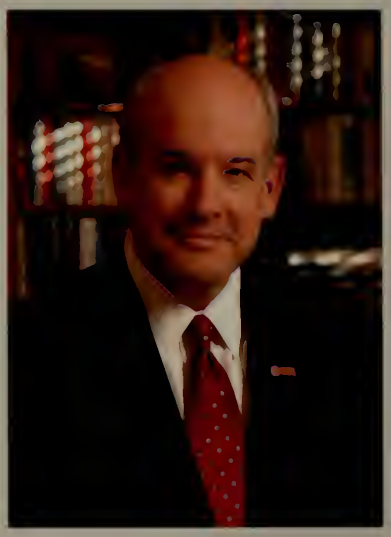
As Good As It Gets

Whether observed in nature or practiced by human beings, *design* is a powerful and pervasive concept. Even in a subject as esoteric as fractal geometry, one finds deeply complex geometric patterns, resembling such natural phenomena as snowflakes, mountain ranges, or coastlines resulting from repeated iterations of simple equations.

Aristotle said of the natural world that it "does nothing uselessly," and that seems to me an apt description for the best of human design as well. Consider the wheel, perhaps the most important mechanical invention in history, which the Mesopotamians attached to their chariots in 3000 BC and New Englanders used to propel the Industrial Revolution in the 18th and 19th Centuries AD. Or the *Gettysburg Address*, remarkably economic at only three paragraphs in length yet so enduring in its power and effect. Or Michelangelo's *Pietà*, with every fold of drapery, every detail of expression, adding to its beauty and impact.

The principle of doing nothing uselessly can also be found in the mission and ethos of WPI. During my inauguration five years ago, I said of WPI that its "curriculum and research program centered on science and technology, complemented and enriched by the other fine and liberal arts and by programs in management, seem to me about as good as it gets in higher education." Today it is clear to me that I wasn't doing this splendid university justice. When it comes to preparing young men and women with the knowledge, skills, and imagination to contribute to this world, I believe a WPI education *is* as good as it gets in higher education.

If nature does nothing uselessly, it is also ever changing, with the shift of continents, fluctuations in climate, and spawning of new species and even new planets. This, too, characterizes the WPI curriculum—not lurching from field to field but evolving and expanding *by design* in areas where we have real leadership to provide, where there is profound interest on the part of our students, and where opportunities exist for collaborations and connections with firmly established programs and initiatives. These were the principles we followed when we recently became the first university in the nation to offer a bachelor's degree, and then a master's degree, in robotics engineering. In just two years, WPI's robotics engineering major has seen an explosion of interest and activity, with students and faculty working together to develop intelligent machines that can bring so much progress to our world, in such wide ranging areas as national defense and security, elder care, and interactive entertainment. This is the stuff of amazement, and I encourage you to see it for yourselves when WPI hosts the first Robotics Innovations Competition and Conference this November. Eagerly anticipated, this competition will challenge undergraduate and graduate students from across the United States to create robotic solutions that improve the quality of life.



If it sounds like a pretty exciting time at WPI, it is! And the world is noticing. Again and again this year, WPI was cited among the top universities in the nation for our innovative curriculum and the competitiveness of our graduates who are so highly sought after for their intellect, leadership skills, and ability to get a job done. Mothers and dads may be glad to know that WPI was recently ranked among the top colleges and universities that produce the best-paid graduates, including 9th in the nation among Ivy League and engineering schools, and 10th in the nation among all schools for highest starting median salary. Just as gratifying, our students are also among the very happiest in the nation according to a recent survey in The Princeton Review. Finally, WPI climbed three places among the nation's top universities in the latest *U.S. News and World Report*. While numerical rankings can never capture the richness and complexity of a university like WPI, we can be most proud of this collective recognition and good news.

Happily, the theme of design in this issue of *Transformations* captures beautifully the richness and complexity of a WPI education. Design crosses science, engineering, management, humanities, and the arts—and so do our alumni, who are artists and engineers, writers and gamers, entrepreneurs and inventors, and scientists and playwrights. Their stories, their lives—your stories, your lives—provide vivid evidence that a WPI education is indeed as good as it gets.

The principle of doing nothing uselessly can be found in the mission and ethos of WPI. When it comes to preparing young men and women with the knowledge, skills, and imagination to contribute to this world, I believe a WPI education is as good as it gets in higher education.

Faculty News

Rick Sisson, George F. Fuller Professor of Mechanical Engineering, was recently named WPI's Dean of Graduate Studies, a new half-time position. Sisson, a long-time WPI faculty member and director of the university's Manufacturing Engineering and Materials Engineering programs, is ranked among the top five percent of scholars in his field. His contributions to the literature in materials science and engineering over the course of three decades at WPI include over 200 technical articles on materials process modeling and control, hydrogen embrittlement of steels, and environmental effects on metals and ceramics.

Kristin Wobbe, John C. Metzger Jr. Professor of Chemistry, has been named associate dean for the First Year Experience. Having co-developed and co-taught one of the First Year Seminars, Feed the World, Wobbe is intimately familiar with the university's innovative program for first year students. As a member of WPI's Interdisciplinary Plant Research Group, she has explored a number of ways to augment the plants' production of artemisinin, a potent antimalarial compound. Wobbe, who joined the WPI faculty in 1995, holds a BA in chemistry from St. Olaf College and a PhD in biochemistry from Harvard University.

Kristin Boudreau joined the WPI faculty this fall as head of the Humanities and Arts Department. Boudreau was most recently professor of English at the University of Georgia. In her research, she seeks to understand cultural influences on literature and literary influences on culture. She earned a BA from Cornell University and MA and PhD degrees from the University of Rochester.

Frank Hoy, an international authority on entrepreneurship, has joined the WPI faculty as the inaugural Paul R. Beswick Professor of Entrepreneurship and director of the Collaborative for Entrepreneurship and Innovation. Most recently director of the Centers for Entrepreneurial Development, Advancement, Research and Support at the University of Texas at El Paso (UTEP), he holds a bachelor's degree in business administration from UTEP, an MBA from the University of North Texas, and a PhD in management from Texas A&M University.

The Beswick Professorship—established through the generosity of Paul R. Beswick '57 and his wife, Siang Kiang—enables WPI to make entrepreneurship an integral element of its mission and helps instill the spirit of innovation necessary for students to succeed in today's technology-driven world.

High Five for WPI Athletics

It was a slam dunk for **women's basketball** last season, as the team captured its second ECAC Division III New England Championship in three years. With a 43–36 victory over top-seeded Nichols College, the WPI team's final season stood at 24–6, a new school record for most victories in a season.

On the **men's basketball** team, their fifth straight appearance in the NCAA Division III Championship ended in round two with an 81–68 loss to UMass Dartmouth.

WPI **baseball** also had an excellent spring season—for the first time in the program's 106-year history, the team earned a spot in the NCAA Division III Championship. "It's a nice reward for all the hard work the guys have put in this year," says coach Mike Callahan.

The team ended its best season yet with a 30–13 record, a third place finish in the eight-team regional, a first-ever regular season NEWMAC championship, and an all-time WPI record for wins.

In July, the **men's crew** team competed—for the first time in the university's history—in the world-renowned Henley Royal Regatta in England. WPI was one of just 27 American institutions participating in the prestigious crew event this year.

2009 Commencement

The world needs people with passion, creativity, and drive. And, according to 2009 Commencement speaker Ursula Burns, the world needs people who will ask questions and challenge convention. "We're finding that some of our old assumptions and ideas don't work anymore, and we can use people who are willing to ask 'Why do we do it that way?' and 'How can we do it better?'" said Burns, now CEO of Xerox Corp.

Burns spoke during WPI's 141st Commencement, held on the campus quadrangle on Saturday, May 16. During the ceremony, 617 bachelor of science degrees, one bachelor of arts (the first BA awarded in WPI's history), 312 master's degrees, and 25 PhDs were awarded. Honorary degrees were conferred upon Burns, as well as Helen Greiner, co-founder and former president of Bedford, Mass.-based iRobot Corp.; George C. Messenger Jr. '51, owner and vice president of Las Vegas, Nev.-based Messenger and Associates, and a recognized authority on transient radiation effects on electronics; and Charles M. Vest, president of the National Academy of Engineering and president emeritus of the Massachusetts Institute of Technology.

By the Numbers

5,000

Square footage of East Hall's living green roof, comprising sedum, chives, and other plants. (WPI's newest residence hall recently received Gold LEED certification.)

930

Number of incoming first year students. Overall, the number of applications for the Class of 2013—a record—is up 10 percent over last year.

500

Approximate number of pages included in the launch (phase 1) of WPI's new website.

20

Number of new faculty members for the 2009–10 academic year.

15

Nationwide rating for WPI's MBA program in the finance category of a student survey in The Princeton Review.

Supporting the City in Many Ways

This July WPI and the city af Warcester began a new valuntary Payment in Lieu af Taxes (PILOT) program that will support Warcester Public Library and Institute Park. Through this 25-year cammitment, WPI will increase its valuntary annual payment ta the city to appraximately $270,000. This amaunt, in additian ta the real estate taxes on properties that qualify far tax exemptian, will bring the university's total valuntary payments to $450,000 in the first year af the new agreement. WPI will further increase its contributians by 2.5 percent annually over the next 25 years, far a tatal of mare than $9 millian aver the life af the agreement.

"We hald fast ta the principle that what's gaad for Worcester is good far WPI," says President Dennis Berkey. "I am pleased ta have reached an agreement that reflects our strang relationship."

Designed for a lifetime of learning
in math, science, and engineering

The work of the WPI K–12 Outreach Program challenges students to grow academically, making a difference in educating the next generation of leaders and innovators.

wpi.edu/+K12

Recognizing WPI Entrepreneurs

James Van de Ven, assistant professor of mechanical engineering, and **Allan Katz '07, '09(MS)** hope to turn their invention into a licensed product. And the duo just might be on their way. Their invention—a high-speed hydraulic valve for use in switch-mode control in hydraulic hybrid vehicles—won the 2009 Kalenian Award, recognition that supports innovative ideas or the development of commercial products. The award includes a $20,000 prize.

Established in 2006 by Alba Kalenian in memory of her late husband, inventor Aram Kalenian '33, the award encourages innovation and entrepreneurship among WPI students, faculty, and alumni by providing seed money to advance their ideas. This year's award-winning invention is a new method for controlling hydraulic systems that uses a hydraulic valve to rapidly switch between efficient on and off states. The researchers' ultimate goal is to develop the invention into a licensed product at a major hydraulics manufacturer.

Receiving an honorable mention this year were **Robert Breznak '09**, **Alexander Camilo '09**, **Kevin Harrington '09**, and **Mark Mordarski '11** of Neuron Robotics, for a system of interconnecting modules, software, and parts that work together to allow researchers, hobbyists, and developers to increase their productivity while reducing their costs and waste.

In Their Own Words

"The goal is to genuinely replace a muscle that's lost. I appreciate that's a very aggressive goal."

—**Raymond Page**, research assistant professor in biology and biotechnology, on his research to regrow limbs
March 25, Wired.com

"People laugh when I say we have another record-breaking year. But [interest in WPI] keeps going up."

—**Kristin Tichenor**, vice president for enrollment management
April 24, *Christian Science Monitor*

"It saves a lot of spacecraft mass, and you can go a longer way."

—**Nikolaos Gatsonis**, George I. Alden Professor of Mechanical Engineering and director of WPI's Aerospace Engineering Program, speaking about new propulsion technologies that increase fuel efficiency
July 20, *Worcester Telegram & Gazette*

"It's like a Tower of Babel situation. You have police, fire, Coast Guard—all with different wireless standards."

—**Alexander Wyglinski**, assistant professor of electrical and computer engineering, on research to develop cognitive radio applications for first responders
March 27, *Mass High Tech*

"We're asking companies, 'What are you struggling with? What are your skill gaps?' We come back and talk with our faculty: 'How does WPI play a role in solving workplace issues?'"

—**Stephen Flavin**, associate provost and dean, Corporate and Professional Education
May 7, *MetroWest Daily News*

Science Summer Camp for All

Underrepresented students from Boston, Worcester, and Southbridge middle schools experienced WPI's state-of-the-art robotics, science, engineering, and mathematics programs during the ExxonMobil Bernard Harris Science Summer Camp, which the university hosted for the first time. The two-week residential camp promoted future careers in the STEM fields.

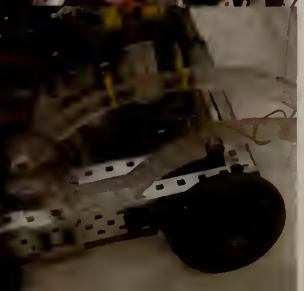
"WPI is honored to be selected this year as one of 11 new institutions to provide this program to students who may not otherwise have an opportunity to participate in such an intensive academic camp that encourages participants to pursue technical and science careers," says Nicole Bradford, WPI's director of diversity programs.

Bernard Harris, a former NASA astronaut and the first African American to walk in space, created the camps four years ago, with support from ExxonMobil. More than 1,500 students across the country took part in this year's camps.

November 7–8 at WPI

RICC

Robotics Innovations Competition and Conference



CALL FOR ROBOTS AND SPONSORS

ricc.wpi.edu

The competition challenges college-age students to design and engineer innovative robotic solutions to real-world problems. Cash prizes up to $5,000 will be awarded. Conference activities will provide networking opportunities as well as interesting speakers. Learn how you can get involved as a participant or sponsor.

This two-day event is free. Register now to attend.

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Other spansars include Tufts University Center for Engineering Education & Outreach, IEEE, and ACM.

RICC is supparted by the Natianal Science Faundatian under Award Na. CNS-0722218

Running Fast, Going Far

The leitmotif that plays through Indraneel Sircar's life seems simple enough: to seek out that which he does not know.

"I like the challenge presented with learning new things," he says, speaking via phone from San Francisco, about to depart for a trip to the Arctic Circle. "I'm easily distracted from something that gets repetitive and mundane."

His life has been anything but dull. When he came to WPI in 2005, he'd already lived in India, Austria, Zaire, Israel, and Malta, before moving to Worcester for four years. The son of a diplomat, Sircar originally planned to study international relations, business, or economics at a liberal arts school. "WPI was the school I knew the least about," he says, "and that excited me to come here."

Having graduated with a mechanical engineering degree in May, Sircar is now pursuing a PhD in the same field at Purdue—an impressive track for any youngster, especially one who didn't originally set out to be an engineer. And yet he looks forward to a career in sustainable energy, ultimately returning to academia to teach.

"As engineers, I believe it's our duty to look at each and every problem critically, with the intent to improve it and ultimately better our society," he says. "We need engineers and scientists to reshape our world—in developed and underdeveloped countries—and realize a sustainable future for our planet."

Sircar speaks from experience—his Major Qualifying Project investigated the use of a liquid piston to optimize the efficiency of gas compression technologies. The project's scope included identifying the optimal operating characteristics of the liquid-piston compressor, establishing a foundation for future research. That project, along with his academic record and involvement in extracurricular activities, gained him entry to the Second Team in *USA Today*'s 2009 All-USA College Academic Team program.

On campus, Sircar was a Crimson Key tour guide and the founding president of the Engineers Without Borders WPI chapter. He also ran track and field, a sport he'd never tried prior to WPI. "It gave me extreme confidence in myself as an individual," he says. "On the track, you must find the strength and motivation within yourself, much like in most areas of life."

"Plus," he adds, "I never knew how fast I could run."

—*CMW*

Michael Malyszko

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WPI

By Eileen McCluskey

Refining Design in Hong Kong

Hidden behind imposing government buildings or barricaded by chain-link fences topped with barbed wire, waterfront parks lie isolated at the edges of Hong Kong's bustling metropolis.

Last winter, four WPI undergraduates set out to help connect these scattered boulevards, pools, and beaches with their respective neighborhoods. Nate Jannetti, Aubrey Scarborough, Paul Smith, and Liz Tuite, all Class of 2010, assessed 48 cultural and recreational sites, most of which lie along Victoria Harbor, situated between Hong Kong Island and the Kowloon Peninsula.

The development patterns along the harbor have been less than ideal. "The government of Hong Kong owns the land and leases it to developers who, in order to increase profits, build tall buildings on the scarce land," says Creighton Peet, director of WPI's Hong Kong Project Center. "Construction goes right up to the edge of the harbor.

"The push is on," he continues, "to get the government to redesign the waterfront as a more aesthetically pleasing place."

Launched in 2002, WPI's Hong Kong Project Center began working last year to address the harbor-front issues with Designing Hong Kong, a prominent nonprofit striving to protect and improve the local living environment. Hong Kong's Leisure and Cultural Services Department (LCSD) also worked closely with the students. A branch of the Hong Kong government, LCSD owns and maintains more than 1,500 public sites in Hong Kong, including those the students studied.

Not exactly walks in the parks

Building on last year's work, the students each took on a dozen sites, riding on buses, ferries, and trams to the playgrounds, cultural centers, and other sites on their list. They visited each place twice—once to make firsthand observations, next to interview park visitors. (Graduate urban design students from Hong Kong University helped translate for the WPI students.)

Before flying to Hong Kong, the students established criteria to systematically assess the sites. "We spent a lot of time discussing how we ought to define each of the four criteria," says Tuite. "This was one of the biggest challenges about this project." After examining prior studies of the area, the students chose four main characteristics—accessibility, connectivity, quality, and design and maintenance—and developed a methodology to evaluate each.

"They had to be clear about, for example, what they

Photos provided by Nate Jannetti '10 and Stanley Selkow.

The development patterns along the harbor have been less than ideal. "The push is on to get the government to redesign the waterfront as a more aesthetically pleasing place."

—Creighton Peet

meant by 'good design' so they could evaluate consistently across sites," says Jeanine Skorinko, assistant professor of psychology at WPI, who accompanied and advised the team.

The students characterized accessibility as a measure of available facilities, such as buses, that allow people to reach a site. Connectivity meant how well the park connects people to the waterfront and vicinity. Quality referred to on-site activities and amenities that encourage people to stay. Design and maintenance was determined by aesthetics and upkeep. The team created detailed checklists for each characteristic. Every site received a score of one to four stars.

After criss-crossing Kowloon, Hong Kong Island, and the New Territories to examine the sites and interview harbor visitors, the students reported that the properties scored poorly. Accessibility scores suffered because only 19 percent of the sites were marked with directional signs from the closest public transportation stop, even though most sites had at least one form of public transportation within walking distance (400 meters).

Connectivity lost points because at 81 percent of the sites, access to the water, to nearby neighborhoods, and even to the site in question was impeded by construction, fences, walls, or roads. Within each park, the team kept an eye out for signs pointing the way to facilities and nearby transport and destinations, as well as for site layout maps; they found that while 83 percent of the parks posted site signs, most lacked other visuals to help visitors make their way around the parks and environs.

Indicators of site design and maintenance included the presence of trash bins and landscaping aesthetics. This category scored higher than the others since all sites offered some form of greenery; only a third had broken or closed amenities. Still, interviewees wished aloud for less pollution and more trees.

Quality encompassed a range of amenities including food and drink, shade from Hong Kong's strong sun, and toilets. Students also watched for the biggest amenity of all, Victoria Harbour, and found that it's impossible to see the water at nearly one-third of the sites. Interviewees frequently voiced the need for shaded seating that faced the water, requirements the students also noted in their observations.

One site—the Lei Yue Mun Typhoon Shelter Breakwater Sitting-Out Area—provided a perfect example of poor design: when visitors sit on park benches, their sea view is blocked by a massive concrete breakwater. Another site received high marks across categories: Hoi Sham Park in Kowloon City is easy to find and offers plenty of shade, harbor views, and food.

After scoring the sites, the team correlated each park's grade with its popularity. "We found that the sites with the higher scores were also the ones where we saw greater numbers of visitors," says Scarborough.

Sensitive presentations, positive results

On paper and at formal presentations, the team offered practical suggestions to improve each of the parks: putting up signs between transport drop-off points and sites, adding recycling bins at all locations, and improving shaded seating and food services. "We also suggested that chain-link and barbed wire fences be removed or changed to be more aesthetically pleasing," notes Jannetti.

The team had spent three-quarters of their time on site visits, interviewing, and assessment, which left only two short weeks to finish up their report and make recommendations to LCSD. "The students presented to officials who've been running these properties for many years," notes Stanley Selkow, professor of computer science, who advised the team. "It would have been so easy for these administrators to get defensive. But the students showed tremendous sensitivity in how they made their presentations, and high officials at LCSD were impressed with the students' results and recommendations."

So impressed, in fact, that LCSD will be enhancing its facilities. "They will add shaded seating, food and beverage facilities, toilets, and signage to improve the vibrancy of waterfront sites," says Paul Zimmerman, founder of Designing Hong Kong, a sponsor liaison.

"The team balanced multiple competing demands on the project," Selkow says. "They worked long hours to complete it, and cooperated well with each other throughout."

Creative Computations

A group of engineers sits at a table discussing the design of a new cell phone. As they toss ideas back and forth, they're gesturing to show the possible width of the screen and placement of functions such as volume control. A computer watching the human gestures presents the group with visuals that approximate the potential phone's dimensions. The engineers manipulate the images—changing, saving, or discarding them as the discussion continues.

Professor of computer science David Brown envisions a time when computerized systems, through the groundbreaking field of Artificial Intelligence (AI) in Design, will assist people in harvesting their creativity in such scenarios.

Brown first discovered the world of AI in Design as a PhD student in computer and information science at Ohio State University in the early 1980s. As he considered his thesis options, his advisor suggested that he solve a design problem faced by a sensor manufacturer: the company, seeking to boost production, wanted a computer to recreate the problem-solving skills of their in-house expert.

The sensors detected thickness for machines that milled plastics and paper. For each milling application, the staff engineer crafted routine but painstaking design changes. Brown interviewed the engineer at length, essentially mining the expert's knowledge of the design process.

Now firmly established as a pioneer in the field, he has delved ever deeper into how AI can leverage and mimic human creativity. "The field has changed dramatically over the last 25 years," says Brown, who arrived at WPI in 1985 and has held a collaborative appointment as professor of mechanical engineering since 1999. "We've gradually moved from programming routine tasks to ever more complex efforts—those involving creativity," he says. "So we've gone from solving relatively easy problems to a point where now we don't have much of a clue anymore about where we might be headed."

Brown received his appointment in mechanical engineering when he began advising ME PhD students, guiding them in programming designs for manufacturing and other fields. One of his protégés—Janet Burge '05 (PhD), whose thesis explored software engineering using design rationale—is now an assistant professor in computer science and systems analysis at Miami University in Oxford, Ohio. In 2009 Burge won the National Science Foundation's CAREER award, one of the most prestigious for young faculty members, to support her continuing research into design rationale, which explores not only the results of design processes but also the reasoning behind design choices.

While AI in Design may sound esoteric to the uninitiated, Brown sees it as a utilitarian tool, grounded in logical reasoning. Creativity, after all, "exists as a judgment relative to personal or group norms," he says. "AI in Design looks to take the subjective and make it objective and, therefore, computable. Creativity can be modeled in computer code because it includes processes involving knowledge and reasoning."

Brown's recent writings explore computational creative design. His articles began touching on the subject in the late 1970s, when he explored a natural language graphics project. More recently, Brown reported on how the AI in Design community is developing definitions of creativity with an eye toward designing and judging products. For example, Susan Besemer, founder of idea*fusion*, has shown that people judge the creativity of commercial products by their novelty, resolution (usefulness and user-friendliness), and style. Brown thinks that computers should also be able to do that.

Additional characteristics refine those main categories. For example, novelty refers to the use of new processes, new techniques, and new concepts in the

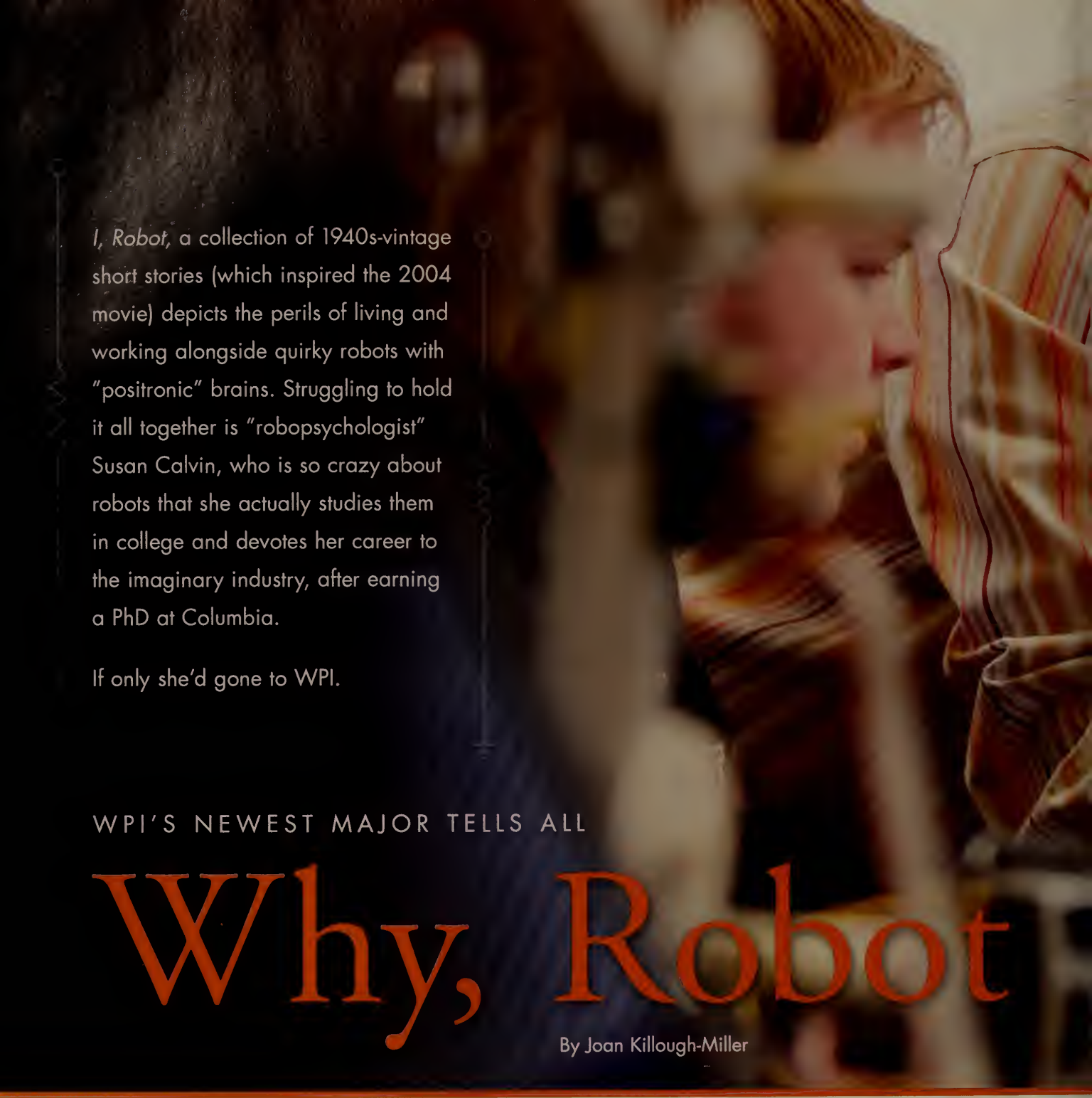
product. It also includes the newness of the product within and outside of its field. Resolution, the degree to which the product addresses a specific need, "underscores the fact that, for products at least, new but bizarre objects aren't seen as creative." Salvador Dali's surrealist Lobster Telephone, for instance, is widely accepted as creative in the art realm. But if viewed as a product, the lobster phone would flunk the creativity exam due to its limited utility.

As such definitions emerge, Brown sees AI in Design stimulating creativity by assisting human experts while they toil at complex projects. Computational models that grasp the basic processes involved in, say, creating buildings, could provide advice and cautions about potential pitfalls in emerging designs.

Next-generation computational design systems could also stimulate creativity by alleviating tedium. Far more ambitious than Brown's PhD thesis for designing part of a sensor, he suggests that a brave new AI program might look more like an architectural grammar to help create buildings. Such a tool would be similar to a language grammar for word processing applications. But instead of piping up when sentences ramble, this lexicon of windows, doorways, materials, and other architectural elements could open imaginations to new ideas for floor plans.

Brown is excited to think about AI in Design interfacing even more actively with people. He points to a special issue of a journal he edits, *Artificial Intelligence for Engineering, Design, Analysis and Manufacturing,* that explores gesture. When computers are capable of interpreting human gestures within a knowledge context, such as architecture, building design discussions could evolve more rapidly or simply more creatively. "I find this area of AI in Design fascinating," he says. "Computer design aids that interact with human designers to support their activity seem to me the most practical next step in this field."

But how or when will AI succeed in computationally modeling creativity? "It's up in the air," says Brown. "AI in Design is so complex and rich that whenever I look at it, I know we're just scratching the surface."



I, Robot, a collection of 1940s-vintage short stories (which inspired the 2004 movie) depicts the perils of living and working alongside quirky robots with "positronic" brains. Struggling to hold it all together is "robopsychologist" Susan Calvin, who is so crazy about robots that she actually studies them in college and devotes her career to the imaginary industry, after earning a PhD at Columbia.

If only she'd gone to WPI.

WPI'S NEWEST MAJOR TELLS ALL

Why, Robot

By Joan Killough-Miller

Author Isaac Asimov did not live to see Susan Calvin's field evolve from science fiction to reality. In 2007—as his futuristic heroine was completing her doctoral work—WPI launched the nation's first undergraduate major in Robotics Engineering (RBE), followed by a master's degree track just this year. (A PhD program is also in the works.)

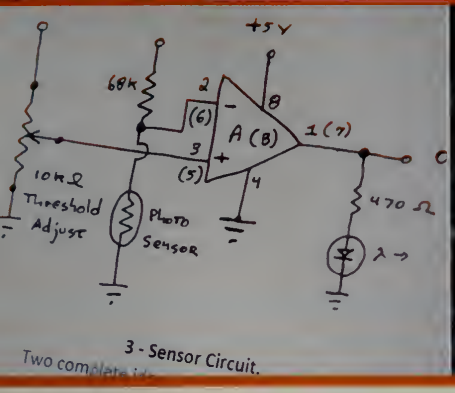
The new program has taken flight faster than expected. Undergraduate enrollment reached 150 within two years—four times the initial projections—and it's slated to comprise 10 percent of the undergraduate student body by next year. The first RBE diplomas were awarded in May—two years ahead of schedule—to upperclassmen who jumped at the chance to switch to the new major.

Building a new breed of engineers

Put simply, robotics integrates the skills of three traditional disciplines to create a machine that can sense its environment (electrical engineering), make decisions about the input (computer science), and act on the decision (mechanical engineering). The well-rounded roboticist brings a toolbox of solutions to every challenge, employing an integrative, systems engineering approach. And WPI is the ideal place

Joe Guylor

Taskin Padir, visiting assistant prof... robotics and electrical and computer engineering



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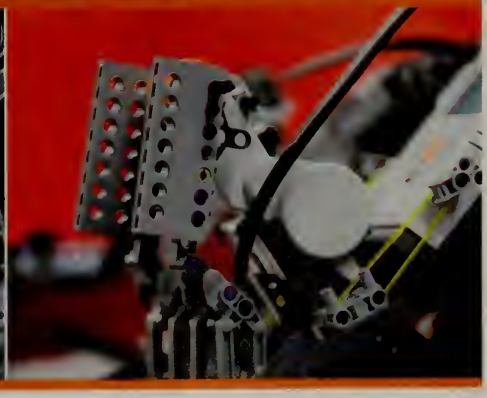
Two complete ...



for such a collaborative, hands-on program that brings together theory and practice.

The birth of the university's newest major was driven by a push-pull, says Mike Gennert, program director and computer science department head. Pull from an industry gearing up for applications in manufacturing, defense, medicine, and healthcare; and push by a generation of young people motivated by high school robotics competitions such as FIRST.*

Ken Stafford, director of the Robotics Resource Center, calls FIRST the catalyst for the robotics academic program. "Around the middle of the decade, we were seeing more and more students coming to WPI expecting to do robotics," he says. "It had gone beyond a hobbyist thing—they wanted to do academic work in it. They were coming here because of their FIRST experience, only to find that the only academic work they could do was in industrial robotics—which is not as satisfying, or sexy, as mobile robots."

The first step was to offer an introductory robotics course, which Stafford adapted from a popular summer program. All 48 slots in Introduction to Robotics were filled before first year students arrived on campus. Extra sections were added, but there was still a waiting list. At the provost's

*See sidebar on page 18.

request, a committee was formed to begin research toward establishing an undergraduate robotics major.

"Initially, I was not enamored with the idea," Stafford admits. "I thought it was too specialized for a bachelor's degree, and that it could turn out to be engineering lite, with no real depth." But he worked with the faculty committee to forge a curriculum with full academic rigor. "Little by little," he says, "I became a believer. Now I believe that robotics is the elite major at WPI—'elite' meaning the most challenging form of engineering."

"Just in time" education

Introduction to Robotics, one of the first courses a WPI robotics engineering major will take, is a microcosm of the university's project-based education, says Stafford. "Our vision is that if you lecture it, it should be used right away. And when we review these courses, we make sure that the word robot is spoken in every lecture, because the content can't be isolated from the context.

"As a product of a more traditional ME program, I remember how my eyes glazed over while I suffered through the groundwork," Stafford continues. "In our robotics courses, all the cool projects are put into practice, at an appropriate level, in the freshman year. It's a 'just in time' fundamentals approach. We do lecture, but we tell the kids, 'You probably ought to listen up, because you're going to need this in lab tomorrow.'"

The challenge is to teach the content of three different degree programs in four years without sacrificing depth. The Unified Robotics curriculum was designed using a "spiral" approach, which wraps the fundamentals of each discipline into an integrated curriculum, rather than a "silo" structure that slices off each discipline vertically. Or, as mechanical engineering department head Grétar Tryggvason explains, "Instead of reading each book all the way through, one by one, and waiting until the final year to put the pieces together, we start by reading Chapter One in all the books. Then we read Chapter Two. We teach the students a little bit about everything. Then we teach them some more about everything, and then even more." All courses are team-taught, merging fundamentals that are common across disciplines and focusing on content essential to the robotics context.

FIRST Things First

It's impossible to talk about robotics at WPI without talking about FIRST (For Inspiration and Recognition of Science and Technology), the international robotics competition that engages more than 196,000 budding engineers ages 6–18, who work with 53,000 mentors, including WPI students. The connections run deep: FIRST was founded by Segway inventor Dean Kamen '73, a member of WPI's Robotics Engineering Advisory Board. His creation captured the imaginations of a generation of high school students and brought them to WPI wanting more.

From the days when a handful of students worked out of a corner of a laboratory, Ken Stafford has watched FIRST grow into the most popular student activity group on campus, with more than 200 WPI volunteers signing up to mentor Team 190, the original WPI-sponsored high school team. What began as fun and games for the students has become a national phenomenon in which WPI makes significant intellectual and leadership contributions.

In 2007—the year Team 190 won its first world championship—news of WPI's new major was broken to FIRST enthusiasts with a high-adrenaline video that rocked the Atlanta event. FIRST exposure continues to pull in applicants from all over the country, says Stafford, and when the robots go out to demonstrations at high schools and community groups, a wave of inquiries follows. Admission surveys confirm that many students choose WPI because of its strong connection to FIRST.

Today, one in ten students comes to WPI with FIRST experience (half of RBE majors are FIRST veterans). WPI, a founding sponsor of FIRST, continues to power the organization with an award-winning Java™ Technology software platform used by all participants, and an NSF-funded project to help teams help each other through an interactive social networking site called ThinkTank.

"It may seem like back-of-the-envelope, garage-shop engineering, but it's more than just fun and toys," says Brad Miller, associate director of the Robotics Resource Center. "They're applying what they learned in class to some very complex components, with a very short deadline. There's no other place at WPI where freshmen can have that expanse of responsibility, authority, and commitment. And when they apply for internships and employers hear what they pulled off in six weeks, they're hired right away."

Stafford says, "My colleagues see our students spending Saturdays and Sundays, even missing the Super Bowl to work on their robots, and they ask, 'What are you holding over their heads to make them do that?' I don't think there's anything quite like it on campus."

That doesn't mean it's all fun and games. "This is not LEGO," Gennert stresses. "This is real engineering. We have students who come in as tinkerers, who might have done some neat things in high school, but it wasn't formal engineering. They didn't learn to solve the mathematical equations involved. Now they need to use their background to learn serious engineering and design."

Help Wanted: Robot Visionaries

Although 2007 was a dismal year for the robotics industry in Isaac Asimov's fictional timeline, reality tells a different story. The year began with the less fanciful Bill Gates heralding the dawn of the robot age on the cover of *Scientific American*. ("A Robot in Every Home," January 2007). Gates made an analogy to the 1970s, the era of industrial-sized mainframes and kooky electronics hobbyists, when the idea of the average person owning a computer—and relying on it to get through the day—seemed preposterous. Today, with the cost of robot components falling and the sophistication of technology rising, we are about to see a transformation that's the magnitude of electricity—or the Internet.

"The world is going to look very different in a few decades," Tryggvason says confidently. "You're already starting to see that. It's not always going to look like the humanoid robots in the movies. It could be as simple as an automatic door that senses when you actually intend to go through and doesn't open every time someone passes by. We already have luxury cars that park themselves. We may not think of them as robots, because there's no droid sitting in the driver's seat. We'll also see more agile, versatile robots on the assembly line, in the military, and in medical operations."

WPI faculty and students are already leading the way in this research. Greg Fisher, assistant professor of mechanical engineering, specializes in technologies for medical robotics and robot-assisted surgery. Computer science professor Charles Rich explores human-robot interaction, with the help of Melvin, one of the few existing robots with human features and an expressive face. Aaron Holroyd '09, a member of the inaugural RBE graduating class, was part of a Major Qualifying Project (MQP) group that improved Melvin's hand-eye coordination. With software designed by the project team, Melvin can see, name, and point to the correct object in response to the actions of a human partner. Holroyd, who is interning at iRobot this summer, is continuing in WPI's computer science program. "My goal is to study the interactions between tutor and student, and to develop robotic tutoring systems," he says. "My degree will enable me to be part of a robotics research company, or to do funded research at a university."

This year's winner of the Provost's MQP Award for Robotics Engineering was a "sand-swimming snake" designed by Brian Benson '09, a mechanical engineering major with a robotics concentration, and Neal Humphrey '09, another of the first RBE graduates. The snake, which travels beneath the surface of a granular media, could have military or surveillance applications. The two students were involved with all aspects of the project: from the mechanical design and circuitry of the snake's networked segments, to analyzing the physics of a real snake's locomotion and writing software to replicate it. Humphrey spent last summer as a robotics engineering co-op/intern at Boston Engineering, and now holds the well-deserved title of multidiscipline systems engineer at MITRE.

In fact, all of WPI's RBE students are graduating into a billion-dollar robotics economy right here in Massachusetts, with 150 companies, institutions, and research labs employing more than 1,500 people. CNET recently ranked WPI among the top 10 colleges for the robotically-inclined, noting the proximity to metro Boston, a "geographic hot spot" for academia and industry. To maximize their impact in this new sector, all RBE majors are required to take a course in entrepreneurship.

"The world needs engineers who not only are problem solvers, but are looking ahead to see what products are feasible, attractive, environmentally conscious, and ethically significant," says Stafford. "It requires not just people who can figure out stresses and strains, but also people who are visionaries."

"The world needs engineers who not only are problem solvers, but are looking ahead to see what products are feasible, attractive, environmentally conscious, and ethically significant."

—Ken Stafford

If the enrollment trends continue, RBE will soon be one of the most popular majors on campus. What began as a joint effort among three departments will eventually demand a department—and a building—of its own.

Regardless of their majors, all students will benefit from studying robotics, says Fred Looft, electrical and computer engineering department head. "Students will likely need some background in the areas of autonomous operations, sensing, and actuation, which is the core of robotics," he says. "They should have some grasp of the advantages and disadvantages of robotic systems and autonomous operations. And they're going to need to understand the systems-level design concepts involved, because you don't design just a robot or an autonomous vehicle, you have to design the full system and consider other factors, such as the operational environment."

As for those students who do pursue WPI's undergraduate or graduate robotics program, the world awaits. "These are some of the best and brightest and most creative students on campus. They haven't taken the easy path, but they have a real passion for what they do," Gennert says. "There's a world of untapped applications out there. What they'll be, I don't know exactly, but I'll tell you this—our students will figure it out." ■

Robotics Innovation Competition and Conference (RICC): Nov. 7–8, 2009. Register at ricc.wpi.edu.

Healing

They are two very different people from different generations, but Harry Wotton '94, '96(MS) and Doug Noiles '44 share a common passion—solving important problems by looking at them in new ways. They also share the entrepreneurial courage to launch companies, developing their innovative designs when others would not take the risk. Because of their work, people who need knee or hip replacements now live better lives, and pets who suffer from orthopedic injuries or disease have better care. Meet the bone fixers.

by Design

By Michael I. Cohen

When freshman Harry Wotton stepped onto the WPI campus in 1990, he had a plan. Train as an engineer, then apply that knowledge to medicine. He hoped to become a medical doctor, but along the way—while planning for his Major Qualifying Project (MQP), actually—a flash of insight set Wotton on a different path.

It started when his advisor, Rick Sisson, the George F. Fuller Professor in Mechanical Engineering at WPI, spoke with Dr. Karl Kraus, who was then a veterinary surgeon at Tufts University. Kraus told Sisson that orthopedic devices to treat dogs with broken legs were not optimal; many dogs did not heal well because the existing devices were prone to failure. Sisson arranged for Wotton to meet with Kraus, and the seeds of his MQP took root.

As Wotton listened to the veterinarian, he immediately realized an underlying flaw with the existing orthopedic products—they were derivatives of devices first designed for humans. "When people leave the hospital with a broken leg they have crutches or a wheelchair, so they don't have to carry their weight on the broken limb while it heals," Wotton says. "That doesn't work for dogs—they need to walk on the broken leg right away. The design for a dog device had to be different."

So Wotton began to design a new orthopedic device for dogs with broken legs. The project combined engineering with his passion for working in a medical field. The fact that it was a canine, not human, medical problem was a modest adjustment he was comfortable making.

For the remainder of his senior year and into his graduate studies at WPI, Wotton worked on the problem and eventually designed an external fixation device. The design provided stability for the bone and tissues to heal, while carrying the animal's weight while it walked.

Wotton built and tested his prototypes in the Washburn Shops. When the design reached a mature enough stage, and the mechanical testing results were optimal, Kraus agreed to test it in the clinic. "A dog had come into the emergency room at Tufts with a fracture and, with the owner's consent, Dr. Kraus used the new device," Wotton recalls. "It worked well, right away."

That first success led to several additional clinical studies at Tufts, with similar results, all of which were published in leading veterinary journals. Kraus confirmed that the new device was a breakthrough—it helped the dogs heal quickly and it was exceedingly reliable. "After those studies, I tried to sell the idea to a company that is now my competitor. But they didn't want it," Wotton says. "Professor Sisson encouraged me to start my own company."

It was 1996 and Wotton faced a major decision. In spite of his growing interest in product design, and the success of his MQP (shown in photo), he had applied and was accepted to medical school. He could have been a doctor if he so chose. "Ultimately, I had to say no to medical school. I was having too much fun," Wotton says. "I love the creative process of design—and there is a real excitement to building your own company. I've never regretted the decision."

With an initial investment of $250, a $5,000 gift from his mother, and hours of sweat equity, Wotton started SECUROS in 1997 to build and market the external fixation device. (SECUROS comes from "secure Os," a nod to the Greek word for bone.) The product was a success from the start, and SECUROS attracted a following among veterinary surgeons, who in turn became a source of ideas for new products. "The surgeons were constantly telling me about the

problems they were dealing with," he says, "and asking me if I could come up with something to fix them."

Since 1997 Wotton has designed hundreds of innovative products, from small screws to large implantable devices, to meet the surgeons' needs. "I tend to do my best thinking at night," he says. "I'll have a thought during the day, and I'll fall asleep thinking about a problem or a design, and I'll often wake up in the middle of the night with ideas to write down."

SECUROS has since grown to 29 employees, with locations in Massachusetts and Germany. The company has seven product lines, hundreds of products, five U.S. patents, and seven patents pending.

In 2007 Wotton sold SECUROS to MWI Veterinary Supply, one of the county's largest animal health products distributors. But Wotton, who lives in northeast Connecticut with his wife and three children, remains the principal designer for the company. "I sold the company only to make it better," he says. "As part of a larger company with a national sales force, we can do so much more. I stayed on as president, and I have quite a long-term contract, so I'll be here for a while. It's fun for me."

This year, Wotton's story came full circle when he became directly involved in the MQPs again, this time as an advisor. Working with Glenn Gaudette, assistant professor of biomedical engineering, Wotton advised four seniors who took on his challenge to design a new product to treat chronic hip dislocations in dogs.

The students, Meghan Pasquali, Nicholas Pelletier, Jennifer Richards, and Jonathan Shoemaker, developed a product design, then built and refined several prototypes. They received the 2009 Provost's Award for their work, and now SECUROS will explore commercializing their concepts. "It was great working with the students," Wotton says. "WPI changed my life, and I want to continue to be a part of it. So this is my way to stay involved and give back."

Doug Noiles was in San Francisco for a conference of orthopedic surgeons and had gone back to his hotel room in Chinatown to think about the problems that doctors were having with replacement hips and knees. It was the early 1970s, and Noiles wasn't a physician but an engineer with a track record of designing successful surgical equipment. Specifically, he was in charge of the design and development team at United States Surgical—a small but growing company in Norwalk, Conn.—who had developed the first commercially viable, clinically effective, surgical stapling system. Business was booming.

"Stapling has a lot of advantages over suturing," he says. "Less handling of tissue makes for faster healing. Staples can be placed more quickly and precisely. Some procedures and delicate tissues permit stapling when suturing isn't possible. Plus, the body accepts stainless steel well."

Orthopedic surgeons were among the biggest users of the staplers, and while the surgeons Noiles spoke with at the conference that day were pleased with his products, they had many problems with the artificial knee and hip joints available at the time. The failure rate for the artificial joints was high, and when they did fail, they caused more damage to the remnant bone and muscle, necessitating additional reconstructive surgery. Patients who suffered a failure were often left with little or no motion in the newly repaired joints. "The devices used after the initial prosthetic failed were pretty awful," Noiles recalls. "Some were, essentially, heavy steel hinges."

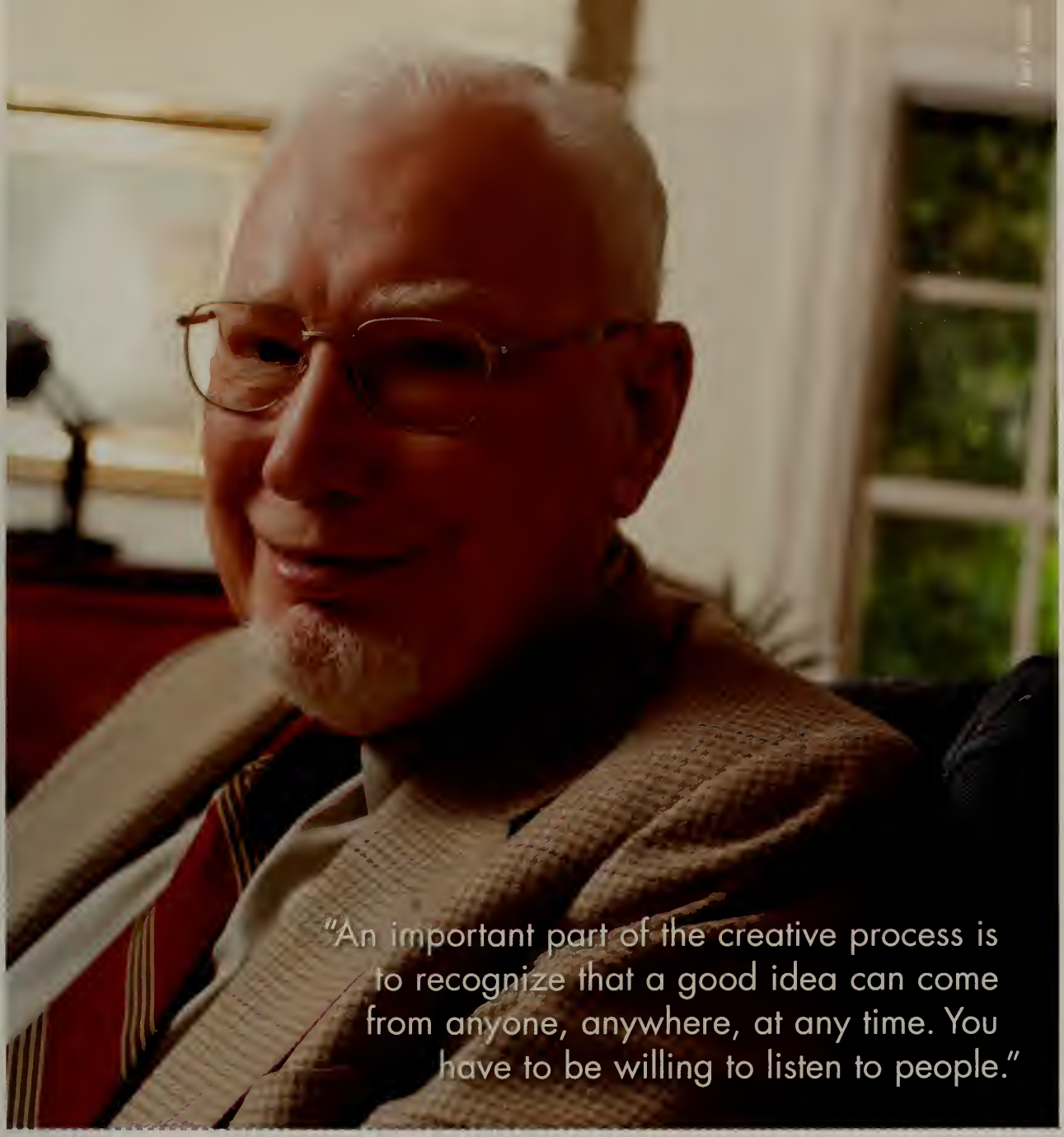
Noiles listened to the surgeons at the conference, and, as he had done all his life, he began to think about the problem in a functional, mechanical way. Ever since he was a young boy growing up in Hudson, Mass., he had been captivated by how things worked. When he was just 6 years old, he began building his own kites and model airplanes, inspired by both the creative process of design and by understanding the mechanics that allowed them to take flight. "As far back as I can remember," Noiles says, "I liked to pick up things and ask, 'What does it do? How is it made? Why is made that way? Is there a better way to make it?'"

As he focused on the problems of the existing knee joints, Noiles took a new approach. "For the most part, those devices were designed by physicians to reproduce the natural structures of the joints—to make them look like what nature had created—and that just wasn't working," he says. "Rather than trying to duplicate the natural form, I believed these devices had to be designed like machines. First, they had to be durable, and then they had to closely replicate the forces and the motions of the natural joint."

After the conference, the design of an artificial knee captivated his thoughts as he settled into bed in the hotel room. "I remember this as vividly today as when it happened," he says. "That night I woke up with a start, sat straight up in bed, and said, 'Why not let it rotate?'"

Although some doctors said it wouldn't work, from that insight Noiles would develop a revolutionary design for a total knee replacement prosthetic that allowed natural rotations. It would eventually become the global standard, but his colleagues at U.S. Surgical were not interested in pursuing the development of artificial joints. The stapling business was growing so rapidly, the company wanted to stay focused on that product line.

Noiles decided to leave the security of a prosperous business and founded his own firm to commercialize the new knee design, along with a new hip device he had also invented. "I couldn't just let these concepts die. I believed they would be better for people," Noiles says. "Plus, U.S.



Surgical was getting so big I wasn't comfortable there anymore. There was something I liked about being part of an embryonic start-up environment."

In 1982 Noiles convinced three of his colleagues to make the leap with him, and they founded Joint Medical Products Corp., which developed his new knee joint and other devices. After a successful 13-year run, Noiles and his partners sold the company to Johnson & Johnson in 1995.

Noiles is now retired and living in Connecticut with his wife, Edna, a Navy nurse he met while serving as a Marine in World War II. He looks back on a 50-plus-year career as an inventor and engineer with 90 patents to his name, from his early days designing textile machinery and electronics to his landmark work in medical devices. He is humble about his impact on the industry, although the numbers speak for themselves: Each year in the United States, more than 500,000 people have knee replacement surgery and some 200,000 have hip replacements. And most of those people are living better, healthier lives, because of Noiles's contributions to the field.

The key to a successful design, he says, is to first understand the problem clearly. He favors simplicity over complexity when imagining potential solutions and, most important, he tries to keep an open mind. "When it came to the knee, I say I had the advantage of ignorance. Not being a surgeon, I had no preconceived ideas about what the product should be," Noiles says. "And an important part of the creative process is to recognize that a good idea can come from anyone, anywhere, at any time. You have to be willing to listen to people." ■

By Kate Evans-Correia

John Myers

"Engineers design, they adapt, they fill a specific need—the form, the size, the scope, the functions—so that it all works. It's a more holistic view."

—Phil Clark

BIG PICTURE PLANS

Design can be an elusive concept. But to Phillip Clark '67, '72(MS) and Mary Ellen Blunt '79 design is at the core of what they do—from planning bridges to building museums. These alumni are big picture planners, approaching each project from a conceptual point of view. They design. They plan. They manage a project in its entirety from purpose to compliance to return on investment. Top in their fields, their experience at WPI fueled their desire to look at projects wholly and holistically and ultimately answer the question, "How are we going to make this happen?"

Chances are you've been in the presence of Phil Clark—if not the man himself, then certainly his work. As chairman and CEO of Clark Patterson Lee, a design firm based in Rochester, N.Y., Clark has been instrumental in numerous high-profile civil engineering, architecture, and planning projects, including a regional water supply system in Genesee County, N.Y., and the Mint Museums in Charlotte, N.C. Over the last 40 years, leveraging the civil engineering education he received at WPI and advanced studies in transportation planning, Clark methodically built a company from scratch to the nationally recognized 200-employee firm it is today.

What makes Clark and his company stand out among his peers is his low-key but purposeful common sense approach. He knows what works—whether that means designing a multimillion dollar state-of-the-art emergency room or a $400,000 addition to a public middle school.

Clark knew in the 7th grade he wanted to be a civil engineer, after working on a career-focused social studies project. "With civil engineering I could work with big trucks," he laughs. "It was cool."

Like most men entering college during the '60s, the Vietnam conflict had a life-changing influence on him. "For my generation, it was the focus, right or wrong," he says. At that time, ROTC was a two-year requirement for incoming WPI students. Vietnam was ramping up and the war weighed heavily on decisions about the future. "You had a choice: Join the military (engineering corps). Get married. Be a teacher. Work in aerospace," he says. "For a civil engineer, the choice was the Navy. It seemed pretty safe. Had there not been a war, I probably wouldn't have gone that route, but I still would have pursued civil engineering."

He joined the Navy Reserves, received commission in the civil engineering corps, and began a master's in civil engineering. But his reserve unit was activated just months before graduation and a tour of duty as a Navy Seabee Company Commander in Vietnam followed. Discharged in 1971, and married with a child on the way, he obtained a position in New York along with finishing his graduate studies through WPI.

His next job was for New York's Monroe County, where he helped manage its wastewater construction program. He broke away in 1975 to start his own business. "I was as good as anybody at it," he says, "and I assumed I'd continue with it until one of the firms I was working with offered me a full-time position."

But when he landed a major project, everything changed. Within two years, the firm had grown to a staff of 20. "I had a young family to support," he says. "It was like staying afloat in the middle of the ocean without a life vest. Survival is motivation." Eventually, the firm branched out into other areas of expertise, including architecture, transportation, and building systems engineering, in order to be a "full-service" operation. "We do it because it works," he says.

Today, the firm focuses on the process of developing projects, not just designing a building, a bridge, or a museum—a point he considers key to meeting market needs. "We develop projects on all spheres," he says.

For instance, Clark Patterson Lee is the architect of record for the $50 million Mint Museums complex in downtown Charlotte, N.C. "We lead and manage the project team, which includes urban design and architectural specialists from Harvard, as well as the building engineering and detailed architectural plans."

The perception of design is flawed, he says, for it applies to both engineering and architecture. "Engineers design, they adapt, they fill a specific need—the form, the size, the scope, the functions—so that it all works. It's a more holistic view."

But high-quality, multidisciplinary design is not the only cog in Clark's business model. Stay out of big markets, like Boston, where you can't compete, he says. Focus on markets that allow you to work on projects that are purposeful and meaningful. Know the company you are and the company you want to be. "We work on relationships," he says. It's more important to focus on reasonable growth in a way that is rewarding and fulfilling, without dramatically changing the company.

"We've created a culture here that works," he says. "We are not a mega firm, not an international firm; never will be, never want to be. Being a mega firm is not on my bucket list."

Outside of Worcester's Union Station, Mary Ellen Blunt is standing on a small grassy meridian, waiting to have her photo taken. Behind her, a swirl of cars winds its way through a rotary (a traffic circle, if you're not from New England). A driver, entering the rotary from Summer Street, rolls down her window and asks Blunt for directions to UMass Memorial Hospital.

The fortuity of the situation is not lost on Blunt, transportation planning manager for the Central Massachusetts Regional Planning Commission (CMRPC). If you need directions, she's the one to ask. Few people in the Commonwealth know the roads better than she does. (In fact, she explains that the rotary outside Union Station is a modern roundabout—it was designed specifically to move traffic more safely and efficiently than the old rotaries or traffic circles.)

The CMRPC includes the City of Worcester and surrounding 39 communities. Through its regional perspective and coordinated approach to planning and development, the commission aims to improve the quality of life for those who live and work in the area.

"There's a complex process that goes into designing transportation corridors," says Blunt, who has worked for the CMRPC since she took an internship one summer as a student at WPI.

And while her department doesn't actually design the roads, it does play a pivotal role in determining—and recommending—how the roadways, or other areas of transit, should be designed. They conduct major studies and collaborate with local and state officials, planning experts, and engineers, all with an eye toward ensuring that projects meet state and federal guidelines.

Blunt began at WPI as a math major, but she switched to a degree in planning, an area that better suited her interests. The program offered a mix of disciplines from urban development to environmental science, ecology, geology, and biology. "The classes took a conceptual point of view," she says. "In other words, we asked, 'How do you make that happen?' It gave me a holistic approach to how things are done."

For her Interdisciplinary Qualifying Project, she focused on planning transit services in the Blackstone Valley for elders and people with disabilities. That project—coupled with her internship at CMRPC—solidified her future career in planning.

Indeed, WPI taught Blunt to consider all elements that factor into any design decision. "If we know that an area is a high-crash location," she says, "we have to look at why. It may not be the design of the intersection, which is the conclusion people often jump to. We might conclude that people are driving while distracted. If that's the case, we can't design something that prevents that."

Today, Blunt continues to ask how and why questions, focusing on the impact of an overall project, rather than on the minute details of one engineering problem. "I'm much more the big picture planner," she says. "I like to decide where to put bridges. I like to think about where people are coming from, where they are going, and what they want to do once they get there. I like to think about the purpose, the order of magnitude."

"I'm much more the big picture planner. I like to decide where to put bridges. I like to think about where people are coming from, where they are going, and what they want to do once they get there. I like to think about the purpose, the order of magnitude."

—Mary Ellen Blunt

For some WPI alumni, it's not so much whether they win or lose, but how they keep playing the game. Even well into adulthood, they have found ways to use their advanced training in such fields as engineering and computer science to design toys and games. Mercedeh Mirkazemi Ward '86, a mechanical engineering major, and Michael Melson '02, '03(MS) and Michael Gesner '03, who both studied computer science, have successfully tapped their educations in the service of what might seem to be more lighthearted enterprises. Mirkazemi Ward focuses on girls' products for Spin Master Toys in California. At ImaginEngine in Massachusetts, Melson and Gesner develop both casual and serious games for consumers ranging from children to prospective defense contractors. All three individ-uals are serious about making fun an integral part of their solutions to professional challenges.

Serious About Games

By Joanne Silver

Less than 24 hours after returning from two weeks of work in Hong Kong and China, Mercedeh Mirkazemi Ward is too busy to deal with jet lag. As she speaks on the phone from her home in Rancho Palos Verdes, Calif., the family's bird chirps in the background, a dog occasionally barks, and her son needs to figure out transportation to his junior prom. Elsewhere in the household, her husband and daughter and an assortment of pets are enjoying the Saturday morning. For the moment, the prospect of Spin Master Toys' next new girls' product is taking a back seat to this pleasantly hectic existence.

"My life is fast," Mirkazemi Ward explains, referring to the toy industry—but also, by extension, to the rest of her activities. "One of the reasons I love this business is it changes constantly. You're always working with new products." The WPI graduate, who began with the Class of '86, but completed her degree in mechanical engineering in 1997 after working at Mattel full-time, is a pro at navigating shifting conditions.

She started young, long before arriving at WPI, or even in the United States. When she was only 14, the Iranian-born tomboy daughter of an architect father and sociologist-trained mother decided she did not want to remain in a country where, as a female, she would have to cover her hair with a chador. Having attended an American school in Tehran and having visited the United States with her family quite a few times, she hoped to move to the home of an aunt and uncle in Worcester and go to school there. "I was always an independent child," she says. Currently the director of girls' products at Spin Master Toys, she admits to having been "my dad's boy" as a youngster, more interested in basketball than Barbie.

With the support of her parents, Mirkazemi Ward left for high school in Worcester on the last day of 1978 and never looked back. (The rest of her family followed her lead several years later when they immigrated to California.) Design dazzled her—whether it was creating theatre sets at Worcester Academy or making an oil painting of a flower split into four panels for her freshman project at WPI. She began college as a civil engineering major, with plans to pursue architecture, but after a summer course in drafting, she switched to mechanical engineering. "I thought, 'That's what mechanical engineers do. They draw a lot,'" she says. "I like drawing. I loved kinematics, anything to do with drawing, graphics. I loved machine shop, carving things, drilling, spot welding, arc welding, anything hands-on."

What she didn't like was getting sick with mono and pneumonia her junior year and falling behind in her studies. True to form, however, Mirkazemi Ward turned a stint at home in California into a design career opportunity. While taking courses at California State University, Long Beach, she began working for Mattel, in a job she directly attributes to her experience at WPI, especially in the machine shop. She also credits WPI's philosophy with her professional success. "What I learned allowed me to do what I do now: thinking on my own, working as a team member, brainstorming, coming up with solutions, being open. Open to ideas. Open to people. Professors' doors being open to you—it's a big benefit that's not feasible for students at other universities." She adds, "If that type of education was available to any child in this country, what a country we would be!"

If WPI initially made Mattel a possibility, the knowledge gained at the toy maker and at Cal State enabled Mirkazemi Ward to return successfully to WPI to finish her course work. She did her senior project on Talking Barbie—something she knew well from her time at Mattel—and drew the doll on Pro/ENGINEER, the 3D CAD modeling system.

After eight years as an engineer at Mattel, Mirkazemi Ward concluded, "I wanted to up my skills," and she transferred to product development, a role that exposed her to every step in a toy's evolution. By the time she was hired at MGA Entertainment in 2000, she was prepared to work on development for the first four Bratz dolls. While in this position, she made her initial trip to China, to select a manufacturer for what would become a hot girls' toy. She has been dozens of times since then—so often, in fact, that one of the border guards between Hong Kong and China recognizes her whenever she passes through.

The pace of traveling back and forth to Asia a dozen or more times a year represents only one piece of the high-pressure toy business Mirkazemi Ward loves. For her first assignment at the relatively young Spin Master, she developed a line of plush, fashion-conscious dogs called Tini Puppini. "Right now the doll market is low," she says. "Bratz and

Barbie are down. Every company is trying to come up with a new product line."

During the quest for the next hit, she is involved in every stage, "from conceptualization to making the first samples to sewing up outfits for dolls." Spin Master's design and development departments collaborate with in-house sales and marketing teams, who in turn consult and present to buyers at Walmart, Target, and Toys "R" Us to determine the proper price and audience. Fashion designers become part of the process, too, as Mirkazemi Ward chooses what sort of accessories a human—or canine—doll might need. There are four seasons in the toy year, and so every three months she must have new lines to show to management.

"Never give up. Never surrender," Mirkazemi Ward says about finishing her WPI degree, wryly quoting from the movie *Galaxy Quest*. She could as easily be referring to her move to the States, her doggedness in founding a women's swim team at WPI, her persistence in creating novel toys in a down market. A year ago, when her son returned from a summer program at WPI wanting to be a robotics engineer, the one-time mechanical engineer found herself thinking back on her own history. "I am very proud of my degree from WPI. It has opened doors for me—more so than most mechanical engineers get," she says. "I would be so proud to have him attend WPI."

They have attempted to balance the Massachusetts state budget, explored the nuances of office culture and defense contracting, and ventured into the sugar-loaded universe of Charlie and the Chocolate Factory. For Michael Melson and Michael Gesner—creators of MassBalance, Q'Bicles, and a variety of other titles—the world of videogame development has been sweet. So sweet—in carbohydrate terms—that they had to accept a vast batch of chocolate chip cookies as partial payment for the Charlie game. In the decade since meeting at WPI, the two have already founded a company—Dragonfly—which joined forces a year ago with ImaginEngine, part of Foundation 9 Entertainment, the largest independent game developer in North America.

On a June afternoon, while the two are busy readying a Christmas game for the pre-release certification process, they take a break to discuss their lives and work. In a nondescript conference room at the Framingham, Mass., headquarters of ImaginEngine, Melson and Gesner trace the two very different paths that brought them together as schoolmates, business partners, and friends. Conversation flows easily between the two. They don't quite finish each other's sentences, but they share so many experiences that the mere mention of spice drops brings back memories of a game they named Crystallum.

"We were dealing with a design problem with a game," Gesner says. "Mike called me up as he was eating spice drops."

"I kept eating like-colored drops," Melson explains, "but I wanted to maintain a balance. I found myself subconsciously grabbing the color I had the most of. I noticed what I was doing and thought we could turn that into a game."

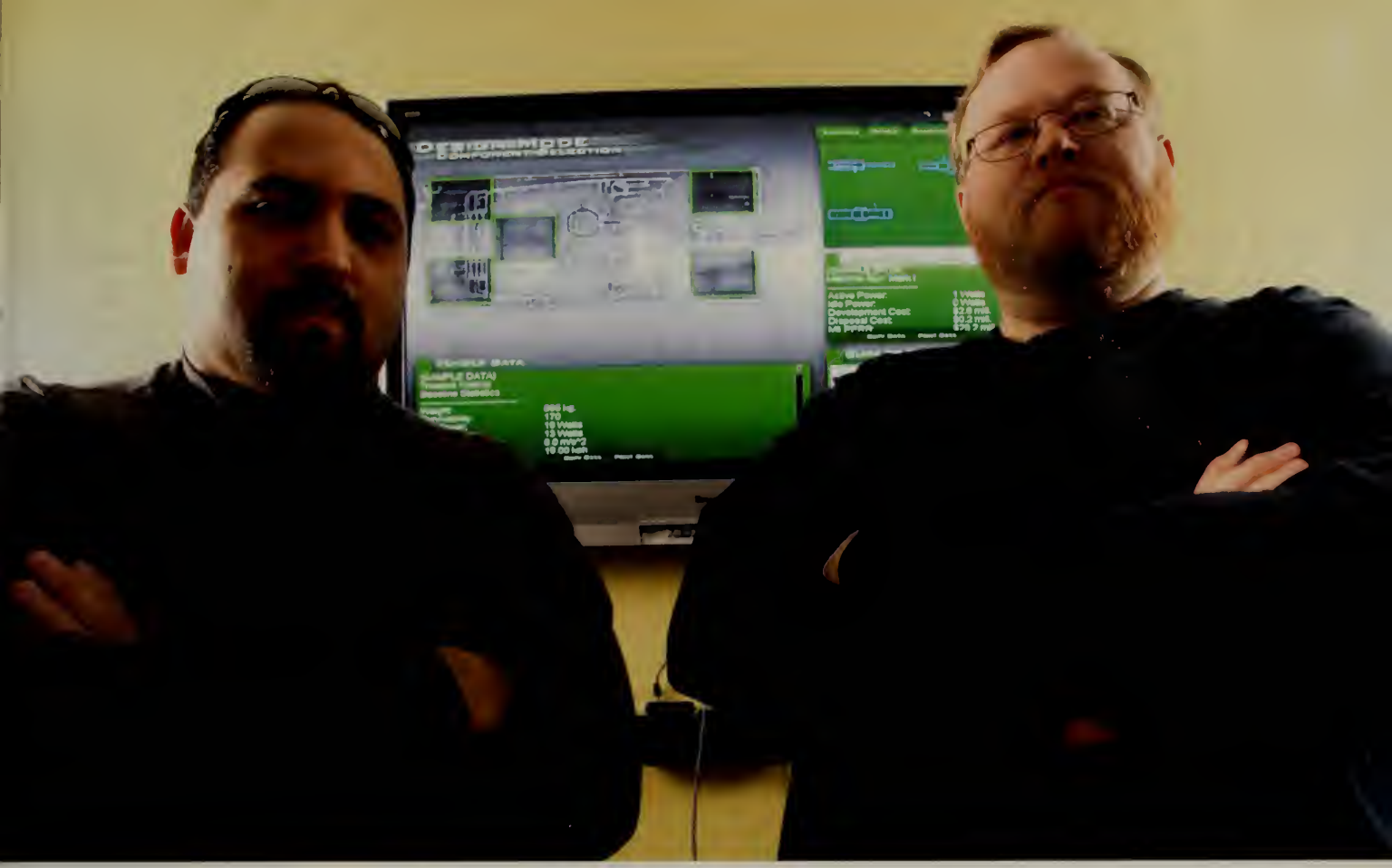
Gesner adds, "Sometimes the most inane things become a game." To underscore his point, he mentions to SimCity, the urban planning hit that drew upon city management for its inspiration.

Both alumni journeyed far to meet at WPI, where Melson received his undergraduate degree in computer science in 2002 and his master's in 2003, and Gesner was in the class of 2003 but left before finishing. Melson started out in Oregon City, Ore., a bright young student who "lettered in chess" but couldn't afford a computer until high school, and took his first plane trip when he arrived at WPI for classes. Gesner, who lived in Hawaii, Virginia, and Colorado with his military family, received his first computer at the age of five, and at seven programmed a rudimentary game in which the user played against Michael Jordan shooting at increasingly higher hoops.

In college and beyond, Melson approached his field from the more technical, pragmatic aspect. "I was the visionary, the loudmouth," says Gesner, who started WPI's Game Development Club—which Melson later joined—and had a role in establishing the university's Interactive Media and Game Development major. Introduced in 2005, IMGD was the first major of its kind in the United States.

Their professional lives really took off in the summer of 2003, when Gesner brought the MassBalance game with him to the Electronic Software Association summit in Washington, D.C. People in the industry told him he should start a game development company. The two friends eagerly followed that advice, launching into Q'Bicles, a fun journey into the minutiae of life in an office. Before long, they were involved in more offerings in the "serious" games category, too—such as JRATS MindRover, developed for Defense Acquisition University (an actual entity), which teaches people how to be government contractors. The biggest design obstacle there was sorting through DAU's 600-page table of contents—just in the contract. A later application, Play the Case, was invented for the *New England Journal of Medicine*, allowing doctors to practice interacting with case studies. Another project, a

Gesner and Melson have worked on both serious and casual video games. Konami Kids Playground (left) and Pinewood Derby are just two of the many projects in which they've collaborated.



Michael Gesner (left) and Michael Melson met at WPI 10 years aga and have been warking an videa games ever since.

national budget simulation game for the U.S. Government Accountability Office, presented a different sort of numerical quandary. "The programming language didn't support numbers that big," Melson explains.

Whatever the game—whether it is casual or serious, aimed at federal workers or schoolchildren—Gesner and Melson ask one essential question: Is the game fun? "If it's fun, players will forgive a lot of flaws," Melson says. And if it's not fun, there's a very good chance players won't be interested. It need not have fancy graphics, although clearly the visual component has come a long way since the early 1970s, when Atari released the minimalist Pong as an arcade video simulation of a tennis match.

In nearly 30 years, games have become more complicated, users have become more sophisticated, and the industry has grown to encompass bigger companies, more applications and formats, and a greater range of audiences. Gesner and Melson look back fondly at the days when you would order a game from someone working out of a garage, who wrote the game, put it on a floppy disk, and stuck it in the mail. In many ways, Gesner believes, the profession hasn't matured from that garage development ethos. For one thing, a spirit of sharing has survived. At postmortems—which feature speakers and discussion groups and often sponsors—developers get together to look at past games and review what went well and what didn't. "The exchange of ideas is what helps our industry grow," Gesner says. "We are happy to share that information whenever possible."

All the thinking in the world does not guarantee success, however, as Melson and Gesner have discovered. "A lot of times, you don't know a game will be good until you make it," Melson says. Critical raves—such as those Q'Bicles received—do not necessarily translate into sales.

As for the stereotype of gamers as antisocial young men alone in their rooms, Melson and Gesner hold that it isn't true, and never was. Gesner says, "Gaming is a very socializing thing. Rock Band and Guitar Hero encourage people to sit in the same room and be social." He lists the many audiences that exist for games today—from musicians to soccer moms. "Everybody plays games now," Melson says. "There's no stigma attached."

At ImaginEngine, where Melson and Gesner are always happy to have WPI students as fellow employees or interns, the two are thinking of where this expanding universe of gamers might lead them. "The entrepreneurial spirit hasn't died," Gesner says. "We're using this time to develop relationships and skills, and become better managers. We wanted to pursue the creation of our own titles in a more stable environment." They have ideas for new games for health, a relatively recent category, as well as less serious enterprises. They never know when or where a new game concept will surface, but they are ready to work—and play. ■

Brand Name Design

By Joanne Silver

"I have worked for companies where I believed in the product. If you can find a way to delight consumers, you can generally be successful."

—Joe Dzialo

Patrick O'Connor

Selling jeans may not seem like rocket science, but that fact doesn't keep Joseph Dzialo from turning to physics in his role as president of Lee. The 1976 graduate explains his logic: "The most valuable aspect of WPI is it helped grow rigorous thinking capability—a skill essential to success in any career endeavor. As one example, I still teach my folks about the physics law F=ma. We use it frequently in business life to create programs that are powerful, and we evaluate same based on their mass and our ability to bring them to life quickly."

In the past three decades, Dzialo's forces, mass, and acceleration have propelled products ranging from shoes to tampons to eyeglasses onto store shelves with a steadiness that has earned the respect of higher-ups at organizations including Procter & Gamble, where he worked for a dozen years, and his current employer, VF Corporation, the world's largest apparel company.

Between an afternoon meeting in Boston's Prudential Center and a flight back to Lee headquarters in Kansas, Dzialo has stopped at the Prudential's food court to chat about the route that has taken an environmentalist civil engineering major deep into retail territory.

Youthful looking in jeans and a sports jacket, Dzialo sounds enthusiastic, even about products he handled years ago. He is as happy describing the inking process in designer Bounty paper towels as the mindset of middle-age women trying on jeans. Challenges—past, present, and future—captivate him, and he offers recaps of some of his favorites.

Easy Spirit shoes, for instance. When he was named president of the company in the early 1990s, after working at Procter & Gamble and LensCrafters, Dzialo was eager to develop a shoe that would be both stylish and comfortable. That's when the company turned to an unlikely source for inspiration. He says, "We knew that in New York City women would go to work in sneakers and carry their shoes in a plastic bag. We studied the NFL: How do these guys run into each other and not get hurt? We looked at cushioning systems—in helmets, in pads. We took cushioning technology, which was developed before I arrived there, and looked at ways to improve upon it and put it into footwear that was stylish."

Sales soared. Dzialo's career moved along nicely, as well. He tends to credit "lucky breaks" for his progress, although the breaks came from people with whom he had worked at previous companies, who were familiar with his dynamism and can-do approach. When he joined LCA-Vision in the late 1990s, he was so positive about their service, he had laser vision correction surgery himself. "I have worked for companies where I believed in the product," he says. "If you can find a way to delight consumers, you can generally be successful."

At LCA, he realized this objective required finding two groups of people: customers who would be receptive to having the vision-improving surgery, and top-of-the-line surgeons who would be drawn to the high standards of LCA. Dzialo outlines various steps taken to create a business model that would satisfy both groups, and shareholders, too. He estimates the stock price increased 30-fold, following the lows from post-Sept. 11.

If such achievements have veered far from the subject matter Dzialo pursued at WPI, they nevertheless connect to the education he values. "I remember my Major Qualifying Project with Joe D'Allesio and Rich Allen," he observes. "We worked with Professor Fred Hart, studying the effluent from wastewater treatment plants and looking for ways to reduce the potential for creating chlorinated hydrocarbons. I don't know why I still remember that project, as it wasn't especially brilliant (though we did get an article about it published) and it really has nothing to do with life since WPI. But we managed to find ways to have fun during our classwork at WPI. Professor Hart was a pretty inspirational but clear-eyed guy. A good role model."

Nowadays, it's Dzialo who serves as the role model, leading teams on a different sort of quest: building a brand. "At Lee and everywhere else, too, being a multidimensional thinker is important," he says, ticking off practical, analytical, strategic, and conceptual capabilities. "Lots of Aha! moments come when someone discovers a significant conceptual similarity between things, places, ideas, despite significant perceptual dissimilarities." Such insights were needed when Dzialo came to Lee three years ago. "It had become kind of sleepy," he recalls. In his assessment, the product didn't fit that well, didn't look that good, and didn't offer a favorable price-to-value ratio.

Dzialo goes on to plot out a path to achieving the goal of a great brand. "You really need to know and value your target customers," he says. "Then build products that delight them at a price they find desirable. Then have a great back-and-forth dialogue with them. Then convince a retail partner to help distribute your product/service (if you're a wholesaler). And do all this in a way that competition cannot easily duplicate. It's that easy!"

There are two moments of truth when Dzialo wants to win over the consumer: when that person makes the decision to buy, and then, later on, when the customer chooses to use the product. To learn more about these pivotal times, Dzialo has gone one-on-one shopping with individuals, and has done what he calls "show me your closet."

The enterprise has the sound of reality TV—retail style. For Dzialo, it's just another facet of a professional life that clearly still excites him. Unfazed by the current financial climate, he declares, "The economy is punishing everyone, but especially the weak or faint of heart. It can be a great opportunity for us, done right. That is our goal at Lee."

Looking back over his 33 years since WPI, he adds, "My career goals were and continue to be pretty simple: I want to be part of a winning team. I want to be where the action is. I want to be able to support my family and give back to my community. And I want to have fun along the way."

Mission—so far—accomplished. ■

Stay connected. Material for Class Notes comes from newspaper and magazine clippings, press releases, and information supplied by alumni. Production schedules vary; please allow up to 6 months for your note to appear in print. We welcome your news by: Web: **wpi.edu/+Transformations** Email: **alumni-editor@wpi.edu** Fax: **508-831-5820** Mail: **Alumni Editor, Transformations, WPI, 100 Institute Road, Worcester, MA 01609-2280**

1940s

Correction: **Frank Bodurtha '42** lives in New London, N.H., not Connecticut, as was stated in the previous issue of *Transformations*.

Robert C. Taylor '46 is now retired.

Sidney Madwed '49 returned for Reunion and shared the following. "Sixty years out of Tech, I've faund that the wisest investment I or anyone can make is health and happiness. I am now focused on sharing from my life experiences about this wisest of wise investments with others."

1950s

Andrew Andersen '51 lost his wife, Joan, on July 3, 2009. She was the sister of **William Coffey '58**.

Philip Simon '53 lives in Vista, Calif., with his wife, Patricia Ann. After retiring fram IBM, he taught at Natianal University in San Diega and naw runs his awn company, Siman Computer Information Systems.

Stanley Jorczak '54 is a retired praject manager.

Classmates maurned the lass af the wife af **Donald Ross '54**. Prue died unexpectedly on June 14, at their home in Newbury, N.H.

Wesley Wheeler '54 cantinues as a marine cansultant and shipyard representative for Blohm + Voss Repair.

Roger Tancrell '56 is now retired.

Ronald Fuller '57 has retired and plans to sell his hame sa he can enjay his retirement.

Jim Alfieri '59 is retired from a 50-year career in canstructian management. He and his wife, Janet, a retired physical therapist, have three children and one grandson. Jim runs marathans and half-marathans to raise maney far the Leukemia & Lymphoma Society.

Bob Allen '59 began his career as a navy officer. He flew with the British Royal Navy, flew in Vietnam, had Pentagon duty, and served as cammander at the Guantanamo Bay Naval Base from 1983 to 1985. After retiring from the Navy he became an environmentalist for the state of Virginia. "I now play tennis, volunteer at church and with the Master Gardeners, travel, and walk our sheepdog. My greatest joys of life are my 47 years of marriage to my wife, Linda, and my daughter and son and five grandchildren."

Don Kirk '59 lives in Carmel, Calif., where he is involved in service activities and enjoys golf, hiking, and bike riding. "My wife and I spend summers at a small house at Lake Almanor," he writes. "We have three daughters and, finally, one granddaughter."

> "Sixty years out of Tech, I've found that the wisest investment I or anyone can make is health and happiness." — Sid Madwed '49

Mohammad Amin '59 taught at the University af Illinais at Champaign Urbana, then spent the 1970s in Iran, where he did academic and administrative work. He worked for Sargent and Lundy Engineers in from 1979 to 2008. In retirement he still consults on structural prablems af nuclear plants. He and his wife, Gloria, live in Glenview, Ill.

John "Pete" Bade '59 is jayfully retired and makes his home in Sharon Springs, N.Y. Married 48 years, he has two sons and twa grandchildren.

"Nine grandchildren keep us busy," writes **Peter Bertsch '59**. He retired to North Kingston, R.I., in 2000.

Clifford Daw '59 went to work for the California Department of Transportation right after graduation and retired in 2008. He alsa served as a U.S. Army lieutenant from 1960 to 1962. "Carolyn and I have taken several trips since retiring," he writes. "I remain active with the Knights af Calumbus. We're enjoying aur grandsan, Devin, who recently turned two."

Len Dutram '59 worked far General Electric and retired in 1993. "Retirement is great," he writes. "I keep busy with sailing, cruising, and cars."

Eli Dworkin '59 writes, "I have been retired for 20 years. The highlight of my retirement is spending every Thursday with twa af my five grandchildren. My future plans are to stay alive."

Frank "Skip" Pakulski '59 retired from IBM in 1993. He taught physics at a local high schaal and then became a full-time tutor. "I enjoy challenging my seven grandkids with math and physics pasers," he writes. "My hobbies include astranamy and watercolor painting. I alsa practice Buddhism and mindfulness meditation."

George Schreiner '59 writes, "Praud af my wife, Betty; children Mike, Andy, Tim, and Meghan; and grandchildren Andrew and Elisabeth."

1960s

Richard Brewster '60 returned from his tenth trip ta Africa in as many years as head technician for Mercy Ships. Since retirement he has served alang with his wife, Susan, a nurse.

Kenneth Parker '61 had a terrific party in December with about 10 other members of Phi Sigma Kappa in Providence. A great time was had by all!

Veikko Uotinen '61 made a trip to Myanmar and Thailand this winter.

Jesse Erlich '62, a partner in the law firm af Burns & Levinsan LLP, of Bostan, was once again named a Massachusetts Super Lawyer, representing the top five percent of New England attorneys. He was honored by the Federal Labaratory Cansortium (FLC) with the 2008 Eastern Regional Outstanding Service Award and the 2009 FLC Technalagy Transfer National Outstanding Service Award.

In the Public Eye

Milton Meckler '54 cammemarated the 40th anniversary af the Apalla 11 maan landing with a reflectian an his invalvement in missian. His 2000 article **"Apollo 11 Moon Rocks Revisited"** in *ASHRAE Jaurnal* describes the challenges his firm surmaunted in the race ta prepare the Gealagy Clean Labaratary at the University af Califarnia, Santa Barbara, ta receive and analyze lunar geologic samples callected by astranauts ● **Curt Carlson '67** taak part in **Tampa Bay Partnership's Global Technology Leaders Roundtable**, which was maderated by **Len Polizzotto '70** ● an interview with **Ken Wadland '72**, develaper af the autarauting algarithms and database architecture far OrCAD's PC-based PCB (printed circuit-baard) schematic taal, appeared in **EDN** (Electranics Design, Strategy, News) ● the "Arubans in the News" sectian af the Repeating Islands blagsite (repeatingislands.com) spatlighted the angaing wark af **Ed Cheung '85** an NASA's **Hubble Space Telescope** ● **Michael Zaramba '87**, president af Altran, was prafiled in the **Washington Post** ● **Mitch Sanders '88**, faunder and executive vice president af ECI Biatech, affered nantraditianal financing advice ta startups in **Inside Finance** ● **NBC Nightly News** interviewed Starbucks seniar vice president Michelle Gass '90 an competitive strategy in the restaurant industry's "caffee wars" ● **Karen Tegan Padir '90** gave the keynate address at the **2009 MySQL Conference & Expo** ● Dave Andrade '92 highlighted WPI's praject-based curriculum in his **Tech & Learning** magazine blag far high-schaal teachers. Read mare at wpi.edu/news/perspectives/techblag09.html ● **Lisa Sorgini '98**, glabal directar far municipal strategic marketing far Siemens Water Technalagies, was interviewed by **WaterWorld** magazine ● **Medical Design** magazine saught aut **Lisette Manrique '03** far her views an the status af wamen in the medical device industry in an article called "Wamen engineers and execs speak aut." (She was alsa ane of the female engineers featured in **PBS**'s "Engineer Your Life" campaign) ● an interview with Create a Camic faunder **John Baird '04** appeared in **Carmine Magazine**. **The Grand News Community Newspaper** cavered his invalvement in the 3rd annual Camic Making Taurnament in New Haven, Cann.

Ronald Lemansky '63 is naw retired.

Tom Newman '64 is retired fram Teradyne as vice president, carparate cammunicatians. Tam and his wife, Bannie, live an Lake Winnipesauke in New Hampshire. He laaks farward ta traveling in his retirement and cantinuing his WPI invalvement as a member af the Annual Fund Baard.

Carl Youngman '64, chairman af Yaungman & Charm, was recagnized by Cambridge Wha's Wha far career excellence. In additian ta his wark in investment management, he teaches entrepreneurship and business management at Babsan Callege.

Warcester Regianal Chamber af Cammerce CEO **Richard Kennedy '65** taak a stand an ald-fashianed business cards in a *Warcester Business Jaurnal* article called "Wha Needs LinkedIn?" "My archaic system warks far me," he said.

James Pierce '65 ran an uncantested race far selectman in Sandwich, Mass., this year. After warking far MIT Lincaln Labaratories he retired fram E. I. DuPant in 2001.

Jerry Cronin '66 ('84 MBA) is naw in the Warcester area laaking ta wark part time and utilize his experience in matars, cantrals, PLCs, and cantral cabinet campanents. Contact him via alumnicannect.wpi.edu far details and resumé.

Asok Shah '66 (MSEE) was appainted ta the newly farmed advisary baard af Persistent Systems.

Curt Carlson '67 gave the 2008 cammencement address at Stevens Institute af Technalagy, where he received an hanarary dactar af engineering degree.

Phillip Clark '67 ('72 MS) is president af Clark Pattersan Lee, an architecture and engineering firm in Rachester, N.Y.

SEE PAGE 24

John Tureck '67 is naw retired.

Michael DiPierro '68 was hanared at Warcester's annual Character Caunts breakfast far his dedicated service as a Bay Scaut trustee and baard member. He is president and CEO af Baystane Carp. in Shrewsbury, Mass.

Robert Horansky '68 is naw retired.

Cary Palulis '68 was pramated ta vice president af lubricants far Harrisan, N.Y.-based Chemlube Internatianal. "I am still based in Avan, Cann., where I live with my wife, Susan. Our daughter, Lauren, is naw a secand semester juniar at Maunt Halyake."

Joseph Stahl '69 is a prafessar af engineering at Halyake Callege.

Paul Wolf '69 is semi-retired but still daing part-time traffic engineering. "I've spent the last twa summers warking at a summer camp far seniar citizens in upstate New York, teaching computer skills and escarting the guests an field trips ta museums, theatre praductions, Tanglewaad, etc."

1970s

Anthony Ruscito '70 went ta Casta Rica with his twa aldest sans. He said it was "the best trip ever."

James Kaufman '71 recently gave labaratary safety training presentatians in India, Bahrain, Germany, and Japan.

Farmer faatball captain **Mike Santora '71** was inducted inta the Graftan (Mass.) High Schaal Hall af Fame. He is tawn engineer far Milfard, Mass., a pasitian he's held far 25 years.

Stephen Siok '71 is retired fram General Dynamics Electric Baat Divisian.

Neil Herring '72 warks far Partners Healthcare Systems in Bastan. His daughter, Kate, is a legislative aide far Alaska State Senatar Hallis French.

Cangratulatians ta **Diane Gramer Drew '73**, winner af the Wamen in Innavatian Award far Large Business Innavatian and Leadership fram the Cannecticut Technalagy Cauncil. She is manager af therma/aeradynamics at Hamiltan Sunstrand in Windsar Lacks, Cann.

Maryann (Bagdis) Goebel '73 jained Fiserv Inc. as executive vice president and CIO. She is based in the campany's Narcrass, Ga., affice.

Donald Kunz '73 is a principal engineer far Veeder Raat Ca. in Simsbury, Conn.

Bookshelf

Recent and new publications by WPI alumni, faculty, staff

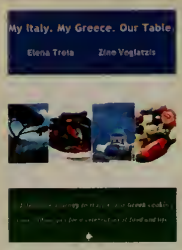
Early Costa Mesa

by Mary Ellen and Art Goddard '63 *Arcadia Publishing Images of America Series*

Vintage photographs document the history of three California farming communities that evolved into a modern "City of the Arts," with world-class performance and retail centers. Art, who recently retired from Boeing Co., has lived in Costa Mesa with his wife, Mary Ellen, since 1977. Longtime members of the Costa Mesa Historical Society, they have assigned all royalties and proceeds from the book to the Society for the preservation and promotion of the city's history.

My Italy. My Greece. Our Table.

by Elena Troia and Zino Vogiatzis '81 *Published by the authors*



Zino Vogiatzis, a native of Athens, fell in love with the rich diversity of ethnic food in America when he first came to the U.S. as a WPI graduate student. Two decades of cooking and conversations with his Italian neighbor led to a series of popular cooking classes, and then to a cookbook that alternates Italian and Greek recipes based on similar ingredients and includes menu suggestions for complementary dishes. Zino, who holds an MBA from the University of Cincinnati, is a small business consultant and founder of Alexander Consulting. He lives in Maryland with his wife, C. Minje Martinez '82.

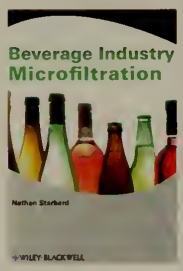
Jinda Maige and the Bone of Evil

by Jack Speight '84 *CreateSpace*

Jinda Maige came to life in Jack Speight's mind during the off season from his job as owner and operator of the Robbins Motel in Bar Harbor, Maine. In the first book of the fantasy series, Jinda—a one-eyed, one-eared tempest on one foot—sets out on a quest to retrieve four magical bones, accompanied by an arrogant teenager who may or may not possess the requisite power to bring the bones together. Fast-paced storytelling (with some gruesome details) and compelling characters quickly snare readers' attention. Speight is already at work on the second book in the series.

Beverage Industry Microfiltration

by Nathan Starbard '03 *Wiley-Blackwell*



In this unique guidebook specifically geared to the beverage industry, Starbard provides a wealth of information on all sectors of the market, including the wine, beer, bottled water, spirits, dairy, soft drinks, sports drinks, and juice industries. As Millipore Corp.'s manager for the North American beverage market, he helps commercial customers optimize all applications of their filtration technology operations. He previously worked for E. & J. Gallo Winery.

Richard Sliwoski '73 is director of the Commonwealth of Virginia's Department of General Services. He was selected to judge the 2008 Best of the Best Awards for *Engineering and News Record* magazine.

ME Professor **Holly (Keyes) Ault '74** was celebrated as a 2009 Woman of Strength at WPI.

UMassmag.com

WPI alumni are reducing the carbon footprint and maximizing the Commonwealth's education budget at UMass Amherst. **John Mathews '74** (pictured), assistant director of facilities and campus planning, served as project manager on the university's recently completed Central Heating Plant. **Pat Daly '73**, director of physical plant, is responsible for powering the Amherst campus—essentially a city of 30,000. The innovative combined heat and power energy center, which replaces a 60-year-old coal plant, won a Pacesetter award from *Combined Cycle Journal*, and was featured on WGBH-TV's "Making It Here."

Stephen Page '74, shareholder in the firm of Page, Mrachek, Fitzgerald & Rose, was named in the Intellectual Property and Commercial Litigation categories of the 2008 edition of "The Best Lawyers in America."

Peter Thacher '74 is based in Dhahran, Saudi Arabia, where he plans capital projects for Saudi Aramco. He has enjoyed sailing the Arabian Gulf in his Hobie 17, skiing in Courchevel, France, and renovating his wife's house in Spain. "Anyone from WPI who passes through the Middle East is most welcome," he writes.

Bill (Wilson) Dobson '75 (right, with wife, Lynn) and **Amy Schneider '77** (with husband, Ed Sciore) report reuniting after more than 30 years. "We found each other on WPI's AlumniConnect site. We arranged a get together with our spouses about a year ago, and since then our families have been getting together regularly for dinners,

dancing, and theatre events. We're still catching up an 30 years af personal history. If yau want to learn more about what we have been up to, check aut our prafiles at alumniconnect.wpi.edu."

Harringtan Group executive vice president **James Rucci '75** celebrated 20 years with the firm this year.

Kenneth Fox '77 works far NextEra Energy in Seabroak, N.H.

Barry Hamilton '77 writes, "I am naw apen to suggestians in my career, as a Nantucket Yankee living in Exeter, England, as well as Alva, Fla. My backgraund can be faund at TechDactar.com. I sure miss WPI and teaching!"

Kenneth Steinhardt '78 is the vice president and chief technical officer far customer operatians at EMC Carporation in Hopkintan, Mass.

Richard Buckley '81 received the 2009 Harris Fellow Award from his employer, Harris Carp. A 25-year veteran af the RF Cammunicatians Divisian in Rochester, N.Y., he was hanared for his multiband radio cammunicatians designs.

Kristi Thompson '81 celebrated 10 years in business as owner/principal of Sierra Associates (kristithampson.com). Her daughter is naw a freshman at Union College.

William Fay '83 is president af Swift River Hydro Operations in Wilbraham, Mass.

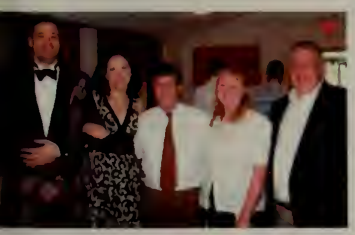
Bob Marcotte '83 is operatians manager and concept developer for Marcotte Creative Media.

Bath Class of **'83**, **Kenneth** and **Dale (DeLibero) Webber**'s aldest son, Kenny, is a junior MIS major at Cedarville University in Ohio. Their yaungest son, Danny, is attending Belmant University in the fall as an ecanamics major.

"We all had a great time at Reunion 2009 and look forward to coming back for the 30th." — Josh Reed '84

Mary (Farren) McDonald '79 will keynate the NOSHCON'09 canference in South Africa, focusing an Occupational Health and Safety. "I am thrilled to accept this invitation, and can't wait ta ga to Natal! My talk will be on 'Integrating Management Standards for More Agile Implementations (ISO 9001, ISO 14001, OHSAS 18001).'"

1980s



Theresa (Metcalf) Catanach '80 writes, "Our yaunger daughter was married in May 2008, and it was a great opportunity far dear friends to gather. Fram left, **Wally Catanach '79**, Theresa, **Michael Curry '80**, with **Maggie (O'Keefe) '80** and **Art Huggard '80**.

David Lesser '80 was appointed CEO af The Siman Group Inc.

Karen Brock Amoah '84 is sales and marketing manager far IPS Corporatian's Weld-On® structural adhesives.

Sharon (Keyes) Barrett '84 is enjoying participating in WPI's Women's Industry Netwark. She is married to **Kevin Barrett '83**.

Bob Korkuc '84 returned to campus ta sign copies af his baak, *Finding a Fallen Hera*.

Jim Melvin '84 is president and chief marketing officer far Apparent Networks in Wellesley Hills, Mass.

Josh Reed '84 lives in Burlington Caunty, N.J., with his wife, Karen, and their twa daughters, Kirsten and Hannah. "We all had a great time at Reunion 2009 and laok farward ta coming back for the 30th."

Jennifer Udall Roy '84 and **Steven Roy '83** are the praud new owners af a harse. Steven is now warking at BAE Systems.

Gail Anderson Tenney '85 is a saftware release manager far IBM National Software. Her husband, **Douglas Tenney '86**, is a seniar develapment engineer with Smith and Nephew in Andaver, Mass.

CAREER CORNER

By Connie Horwitz, Assistant Director, Career Development Center

Life and Career by Design

Design is a visual word. I see visions of blueprints, drawings, and plans. It's a concrete object, a concept, a strategy. What design doesn't immediately invake is its potential application to life. We didn't design our family origins, aur natural aptitudes or deficiencies, ar the unexpected events that occurred as we have lived and grawn. Surely, we can laak back and boast about some personal design elements, which I like to call 20/20 Design Sight. It's our ability to discern, with a fair measure of visual acuity, where we applied the brush strakes af design. For most af us, the mast relevant application is career.

Designing one's career may seem a luxury during these difficult times. But you can take control of yaur design strategy by reflecting on yaur wark to determine if the weight of your time on the activities you truly enjay is praperly balanced with your other abligatians. Take a laak at your career thus far—when you were most happy? What were you doing? What projects ar accomplishments were the most fun and exciting? What daes yaur 20/20 Design Sight Analysis tell yau? And if yau cauld apply a camputer-aided design taal, how would yau re-draw your career path?

How many times have you heard someone say that their career was the result af luck? If yau probe further, you'll often find that the element of luck is intersected with a persistent sense of purpose, a site plan. What is your positianing for the future—yaur 20/20 Design Site Plan? If you could throw caution to the wind and start over, where would you go? It's yaur design ta create—have at it. Pick an entirely different enviranment and imagine haw you would bring out your designated capabilities in a completely new warld. And then, with a pinch of luck and a dose of happenstance, imagine how much impact a career by design might have in cantributing to a life by design after all.

If you wish ta explare the elements af your design, you are invited ta contact the Career Development Center for an in-persan ar phane appaintment at 508-831-5260 or cdcalumni@wpi.edu.

Cantact Cannie at **cdcalumni@wpi.edu**

Edward Childs '86, a portfolio services associate with Back Bay Financial Group in Bostan earned his certified financial planner designation.

John Jezowski '86, a financial advisar for Merrill Lynch Global Wealth Management, was elected chair af the Board af Trustees far Easter Seals Greater Hartford Rehabilitation Center.

Mark Matulaitis '86 is a hardware design engineer for Tritel in Hudson, Mass.

FPE department head **Kathy Notarianni '86** was named 2009 Outstanding Alumna by St. Mary Academy-Bay View. As the academy's first graduate ta attend WPIshe paved the way for other young women ta choose careers in science and engineering.

Andrew Schwarz '86 works for Supply Frame Inc. in McKinney, Texas.

Jeffrey Bloom '87 joined Dialogic Media Labs as directar, videa technologies, in the company's Eatontown, N.J., research headquarters.

Curt Duffy '87 is an adjunct instructor at LA Pierce College. He recently published a short stary on storyglossia.com titled "Hobblescotch."

Bill McCullen '87 is director af Launch-Capital's Boston affice.

Dave Partridge '87 was promated to assaciate at Tighe & Band in Westfield, Mass.

Suzanne (Lewis) Pisano '87 joined Geo-Insight Inc. as a senior assaciate/campliance specialist in the Westfard, Mass., office.

Brian Teague '87 was named a shareholder in the Richmond, Va., intellectual property law firm of Thomas, Raring & Teague, PC.

Richard Davis '88 (MS) taak office as president of SFPE for 2009. He is assistant vice president and seniar engineering technical specialist at FM Globat.

Joseph Fitzgerald '88 warks at Cambridge Technalagy.

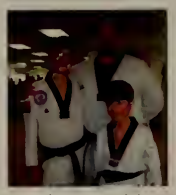
Praxair Inc. named **Larry Megan '88** a corporate fellaw in its industrial gases research and development organization.

Joseph Tracy '88 was promoted to president af Travelers Inland Maine, where he has warked since 2006.

Donna DeFreitas '89 is a senior associate with Genesis Engineers in Pennsylvania.

Daniel Ericson'89 (MS EE) is principal technologist far M/A-Com.

Heidi Franklin '89 is a marine researcher at the University of Maine.



Jeff Goldmeer '89 and his oldest sons, Ezra, 12, and Eitan, 8, received their second-degree black belts in Tae Kwon Da in May. On the day of testing, the three Goldmeers broke faur bricks and 22 waod boards. "The gaad news,"notes Jeff, "...no braken banes!"

#1 PART-TIME **MBA** IN THE NORTHEAST (*BUSINESSWEEK*). **#4** PART-TIME **MBA** PROGRAM IN THE US IN **ACADEMIC QUALITY** (*BUSINESSWEEK*). **#5** PART-TIME **MBA** PROGRAM IN THE US IN **STUDENT SATISFACTION** (*BUSINESSWEEK*). **#9** PART-TIME **MBA** PROGRAM IN THE US (*BUSINESSWEEK*). ONE OF

When you link business, technology, and innovation, something powerful happens.

WE CALL IT SUCCESS.

Today, businesses around the world face unprecedented challenges. More and more, they are hiring WPI MBAs to turn these challenges into opportunities. They have learned that our graduates possess the rare ability to approach opportunities from new angles, develop innovative solutions, and move organizations boldly forward.

Visit our website to learn more about our highly ranked MBA program.

wpi.edu/MBA

WPI

WORCESTER POLYTECHNIC INSTITUTE

THE **TOP 15** PROGRAMS IN **FINANCE** (*THE PRINCETON REVIEW*). **TOP 10** PROGRAM FOR **OPPORTUNITIES FOR WOMEN** 4 OF THE PAST 5 YEARS (*THE PRINCETON REVIEW*). A **TOP 10 MBA** PROGRAM FOR **CAREER OPPORTUNITIES** (*BUSINES 2.0*). BEST **ONLINE MBA** PROGRAMS (*U.S. NEWS & WORLD REPORT*).

508-831-5218 | wpi.edu/MBA

THE DOLAN CHALLENGE

TAKE THE CHALLENGE TODAY

Your gift makes an even greater impact

Trustee **Mike Dolan '75** is challenging WPI alumni from the **last 20 years** (1990–2009) to support WPI's innovative approach to science and engineering education. **He will match (50 cents on the dollar) gifts to the Annual Fund of at least $100, now through June 30, 2010.**

When you give to the WPI Annual Fund, you demonstrate your belief in your alma mater and its noble mission—to educate the next generation of leaders in science and engineering and to create positive change in the world through the purposeful application of engineering, science, and technology.

Your participation in the Annual Fund helps make WPI a world-class experience for students and faculty.

Take advantage of the Dolan Challenge today: ***wpi.imodules.com/dolan***

Fran Hoey '89, senior vice president of Tighe & Bond, has become a LEED (Leadership in Energy and Environmental Design) accredited professional.

1990

Rebecca Hutnak Berchem is a senior systems engineer with Raytheon NCS and is married to **David Berchem '06** (MS).

Julie Bolton was appointed vice president of risk services for Zurich Canada, part of the Zurich Financial Services Group.

Christopher MacGregor works for Amazon.com.

Scott Manchuso works in client development for Boston-based Circles Inc.

Michael Pace is an associate vice president of investments for Wells Fargo Advisors.

Patrick Welge became president of Controx Cutting tools in Springfield, Ohio, in May.

1991

Jason Kallio, a self-described "edutainer," entertains schoolchildren with his magic act while educating them about serious subjects, such a bullying. His business, "Say it With Magic," is based in Sutton, Mass. See Jason in performance in the News section of WPI's alumni site, wpi.edu/+alumni.

Suzanne (Mador) Sturm and her husband, Jeff, live in Waterford, Conn. Sue left her job at Millstone Nuclear Power Station six years ago and now stays at home raising their five daughters. "Yes, five daughters, you read that correctly!" she writes. "We are looking forward to someday filling our own four-woman boat, plus coxswain."

HIRE WPI

Hire a WPI alumnus, new graduate, or student and you'll gain someone who is globally minded, collaborative, innovative, ready to contribute from Day One...

In other words, hire someone like YOU!

WPI

Career Development Center

employer@wpi.edu

leaders + innovators +

Richard Willet is president and CEO of NewPage Corp. in Miamisburg, Ohio.

1992

After 12 years of corporate and foundation fundraising for WPI, **Terry Schmidt Adams** has become WPI's K–12 outreach program manager. She, her husband, and their 8-year-old son live in Douglas, Mass.

Concetta DePaolo and her husband, David Rader, are pleased to announce the birth of their daughter, Abigail Marie, on Feb. 10, 2009. Abby joins big sister Megan, who is now 6.

Cosme Furlong (MS, '99 PhD) was promoted to associate professor of mechanical engineering and awarded tenure. He joined the WPI faculty in 1999.

Jeff Mathieu has been working for Tetra Tech, Inc. in Santa Maria, Calif., for 11 years. He has also been an instructing Pollution Prevention at Cal Poly, San Luis Obispo, for the past seven years.

Ellen (Madigan) Newman and her husband, Ben, are excited to announce the birth of their first child, Riley Elizabeth, on Jan. 8, 2009. They live in East Cambridge, Mass. Ellen works for the Stop & Shop Supermarket Company headquarters in Quincy as director of organizational development.

David Rostcheck works for Brinks Inc.

1993

Christopher Cyr and his wife, Heather, are pleased to announce that their 4-year-old son, Nolan, became a proud big brother to Elliot, who arrived in October 2008.

Aline (Sangrey) and **Kevin Davis** are the proud parents of twins, Rachel and Hope, born in 2006, and a son, Nathan, born in September 2008.

Ashton Kane works for Westside Animal Hospital in New Hampshire.

1994

Jason Johnson is production manager at Karl Storz Corporation in Charlton, Mass.

1995

Tom Dube joined J. M. Coull in Maynard, Mass., as vice president of the company's preconstruction group.

Yin-Ying Lu and **Nicholas Sushkin '98** are the proud parents of Nathaniel, 5, and Maya, 1.

Jeff Mullen and his wife, Kerry, are proud to announce the birth of their second child, Olivia Ann, born Jan. 9, 2009. She joins a very excited big sister Julia, age 4.

1996

Michelle (Bruneau) Atchison is a global trial leader in Pennsylvania. She and her husband celebrated the arrival of their second child, a boy, last year.

Weston Clarke is a software engineer with Sepaton Inc. in Marlborough, Mass.

Sameer Junaid is a clinical neurophysiologist for Surgical Monitoring Associates.

1997

Michael Driscoll conducted Chorus pro Musica in March, in a program of Bach and Handel, which also featured the Boston premiere of a contemporary piece by Jonathan Dove. After earning a master's degree at New England Conservatory, he launched a new career conducting several Boston-area choral groups.

Flavia Souto Pastore is a senior quality engineer at iRobot in Bedford, Mass.

Keith Strang is a hardware engineer with LSI Logic.

Erik Thomas was honored by the arts community in Waterville, Maine, for his work in transforming a foreclosed department store into a cultural center and mobilizing a coalition of corporate and nonprofit organizations to support it. He received the William R. Cotter Award for community service, named for a former Colby College president. Thomas, an active volunteer on the civil and cultural scene, owns Digital Image Works and The Blue Marble Gallery.

Peter Turek works at Marshall Space Flight Center.

1998

Douglas Cloutier is demand manager for The Timken Company.

Matthew Johnson and **Melissa Clark '99** welcomed a son, Shane, in October 2008.

Jeremy Johnstone is happily tweeting, blogging, and enjoying life in Maryland.

Prudence (Martin) and **Aaron Jones** welcomed a baby boy, Quinton Connor, in August 2007. They live in Portland, Maine.

Ichiro Lambe is president of Dejobaan Games. He returned to WPI last year to teach a master class in WPI's Interactive Media and Game Development (IMGD) program last year. He shared his enthusiasm for his career with students in a presentation called "Make the Most Happy Game in the Whole World," noting that he aspires to become the Walt Disney of the game world.

Eduardo Oliveira is a senior applications engineer for Vicor Corp. in Andover, Mass.

Nilufer (Saltuk) Soucek and her husband, Paul, welcomed their first child, Sofia Emine, on Jan. 25, 2009.

1999

Family and friends gathered to witness the marriage of **Leigh Anderson** to Michael Cooke on July 26, 2008. The couple honeymooned in Stowe, Vt., and currently resides in Perth Amboy, N.J. Leigh is completing a dietetic internship through the University of Medicine and Dentistry of New Jersey.

Janet Burge received an NSF CAREER grant for her research on a Rational Management System to capture design decisions during software development. She is a computer science professor at Miami University in Oxford, Ohio. *Read about Janet's work with CS professor Dave Brown.*

SEE PAGE 14

Homecoming 2009
BACK TO TECH
OCTOBER 30–31

Mark your calendars now! All alumni are welcome to attend Homecoming 2009.

Reunion activities are planned for these classes: 1994, 2004, and 2009

Friday, October 30

> Hall of Fame Inductions: Larry Penoncello '66, Garrett Trombi '85, John Loonie '87, Jonathan Pires '00, and Kerri Coleman Oldmixon '03

Saturday, October 31

> Alumni Association Awards Ceremony: Michael Bruce '94, Ted Dysart '94, Bob Mason '94, Warren Smile '94, and Harry Wotton '94

> Conversation with President Berkey

> Activities for all ages on the Quad

> Homecoming Parade of Floats

> WPI Football vs. Hobart College

CHECK YOUR MAIL SOON FOR COMPLETE HOMECOMING 2009 REGISTRATION INFORMATION.

Questions? Please call the WPI Alumni Relations Office at **508-831-5600** or log on to **alumni.wpi.edu/reunion**.

New Faces in Development/Alumni Relations

Aubrey Valley, associate director of alumni relations, is leading WPI's Alumni Chapter and Club and the Graduates of the Last Decade programs. She also coordinates Homecoming, annual events at Tanglewood and the Boston Museum of Science, and on-campus events geared toward alumni families. She also oversees the online presence for the Alumni Relations Office. • Valley brings to WPI strong marketing and communications expertise. Most recently, she served as a marketing communications professional at Hypertronics Corp. in Hudson, Mass., and has held numerous positions in higher education including Nichols College, Suffolk University, and the University of Massachusetts, Amherst.

Audrey Klein-Leach, executive director of planned giving, directs efforts to strengthen and grow the university's planned giving program. She works with WPI alumni and friends who are interested in giving to the university through a deferred gift, such as a bequest, Charitable Gift Annuity, and Charitable Remainder or Lead Trust. She also advises staff and volunteers regarding deferred gift options. • Klein-Leach has extensive experience as a trust officer and development professional. Prior to joining WPI, she was vice president and trust officer at U.S. Trust/Bank of America Private Wealth Management in Worcester, she was also the first full-time development and communications officer at the Greater Worcester Community Foundation. In addition, she has held development positions at Concord Academy in Concord, Mass., and The Nature Conservancy.

Maria Mike-Mayer, executive director of corporate and foundation relations, is responsible for planning and implementing a comprehensive engagement strategy for corporations and foundations. Working closely with senior administrators and faculty, she will promote substantive interactions with industry and philanthropic agencies to secure resources for WPI and establish long-term, productive relationships. • Mike-Mayer comes to WPI with expertise in both corporate grant-making and development. At Tufts Medical Center in Boston, she established a new and successful corporate and foundation relations unit. Prior to that, she served as director of corporate and foundation relations at Boston College, and director of corporate relations and interim director of foundation relations at Yale University. She gained firsthand knowledge of foundations while managing Texaco Inc.'s worldwide corporate contributions program, but was also secretary of the Texaco Foundation. Through a program that loaned the expertise of Texaco executives to United Way, Mike-Mayer spent three months in Europe establishing United Way of Hungary, a rewarding experience that motivated her career change to the nonprofit sector.

James and **Gisela (Field) Carlson** welcamed a san, Benjamin, in November 2008.

Jennifer Copponi is a structural engineer at Ocean and Coastal Consultants in Massachusetts.

Major **Matt Poisson** graduated fram the Air Farce Test Pilot Schaal at Edwards AFB, Calif. He is the third WPI alumnus to complete the caurse in the past three years. He was also recently promoted to majar and will be spending the next three years in Southern Califarnia, where he will be flight testing new weapons and systems integration on F-16 aircraft.

2000

Brittany (Noga) and **Eugene Campbell '01** welcomed a son, Cole Raleigh, in July 2008.

David Maxson is a seniar investment officer at ACCION Internatianal.

2001

Alex Knapp writes far "Outside the Beltway," an online political journal. A graduate of the University of Kansas Schaal af Law, he is a self-described political, philosophic, and pap culture junkie.

Jennifer Headman Van Vleet completed her PhD in micrabiology at the University of Wisconsin-Madison in April 2009 and relocated to Visalia, Calif.

In his secand pramatian in a year, **Michael Quigley** has been named a principal af WB Engineers Cansultants.

2002

Michael Dorval married Nadia Saleh, Oct. 11, 2008. He is a fire protection engineer with ESPN in Bristal, Cann.

Brian LaPlume is an electrical and systems engineer far Raytheon in San Jase, Calif.

Gosia Machate was named a New Face af Engineering by the Natianal Engineering Week Foundation. Nominated by ASME, she warks far the Naval Undersea Warfare Center in Newpart, R.I.

2003

Caitlin Callaghan (MS, '06 PhD) received the degrees of juris dactor and master of environmental law and policy from Vermant Law Schaal in May. She will be warking for the American Association for the Advancement of Science as a science and technalagy fellow at the U.S. EPA Office of Policy, Econamics, and Innavatian.

Edward SaiChung Lo is a test engineer with Draper Labs in Cambridge, Mass.

2004

John Chrzanowski has a new home in Marlbaraugh, Mass., and is newly married.

Tom Daly and **Jeremy Hitchcock**'s campany, Dynamic Network Services Inc. of Manchester, N.H., released its new global server laad balancing system, Dynect Traffic Management.

Adam Flaherty is an instructar pilot with the U.S. Air Force in Columbus.

Andrew Freeman is a software engineer with Aastar Telecam USA.

Sarah Bellfy Koniers received her VMD fram the University of Pennsylvania's School af Veterinary Medicine in May. She will be working with VCA Northside Animal Haspital in Bethlehem, Pa.

Andrew Mellors is a software develaper at BMC Saftware in Lexington, Mass.

Michael Orrel and **Nicole McMahon** had a healthy baby boy recently.

Elisa Rodriquez is a lab manager and research assistant with Caritent Therapeutic in New Haven, Conn.

Daniel Rucci is a saftware engineer at IBM in Baston, Mass.

Jillian (O'Toole) and **John Urban '03** welcomed a son, Quinn Thomas, in August 2008.

2005

Hunter Bennett-Daggett jained Westan & Sampsan in Portsmouth, N.H.

Matthew Chowaniec and **Jessica Blanchette '07** were married Oct. 11, 2008. Matthew is a biamedical engineer far Covidien, and Jessica works far Averian, monitoring clinical trials. They live in Middletown, Cann.

Jack Coyne is an electrical engineer with Stoneridge Technolagy in Maryland.

The marriage ceremany on Oct. 17, 2008, of **Sean Hoey** and **Elizabeth Szafarowicz '06** included classmates **Rebecca (Nacewicz) Hallinan**, **Angela Martino**, and **Gilead Ziemba** in the wedding party. They currently reside in Franklin, Mass. Sean is a project superintendent with Narthern Construction, and Elizabeth is a project engineer with Gale Assaciates Inc.

Michael LaBossiere married Katherine Ames at Higgins House on June 28, 2008. They honeymaaned at Disney World and live in Littletan, Mass.

Jonathan Meredith is president of Meredith Enterprises Management in Melrase, Mass.

Marek Twarog is an independent consultant with Plymouth Rock Assurance Co.

2006

Bardio Alavi works far Cisco.

Air Force 1st Lt. **Rececca Casey** was named 50th Space Wing and Team Schriever Company Grade Officer of the Year for 2008. She is chief of military strategic and tactical relay operations, weapans, and tactics.

Lieutenant (jg) **Matthew C. Currid** was recently designated a naval flight officer. He received his "Wings af Gold" after campleting the Advanced Jet Navigation Caurse with Training Squadron 21, Naval Air Statian, Kingsville, Texas.

Michael Lundy warks in the Robotics Division of NASA in California.

Jason Overson is thrilled with the purchase of his new cando in Manchester, N.H.

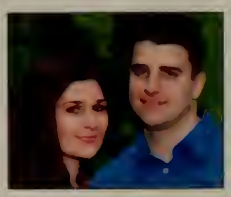
Daniel Pickett and Shannan Smith were married May 23, 2009.

Daniel Torrey works in tech suppart with Hewlett-Packard in Spain.

2007

Jessica Clark is an analyst with IMPAQT. She is recently engaged to be married.

Timothy Connor is a business systems analyst with Mass Mutual Life Insurance Co.



Tarra Epstein and **Paul Marchetti '05** are engaged and plan to marry in September 2009.

Batsirai Mutetwa is saan maving to Landon to join her fiancé, Taku Mutasa, whose family has been close friends with hers for generations. Batz recently completed a master's degree in epidemiology and intends to pursue a medical degree in England.

Suzanne Peyser, a civil engineer in Waburn, Mass., office af GEI Consultants, recently passed the LEED (Leadership in Energy and Environmental Design) exam for accreditation.

Jessica Rosewitz just got back fram Singapore.

Larry Sartoris has spent the last few years working at Raytheon in California. He was married in October 2007.

2008

David Beal is a civil engineer with Vanasse Daylor in Fart Myers, Fla.

Catherine Casey is a graduate student at Dartmouth College.

2nd Lt. **Kyle Dedmon** is stationed in Geargia.

Eric DeLuca is an applicatian engineer at ITW Devcon in Danvers, Mass.

Timothy Ebner is an R&D engineer with Covidien in New Haven, Conn.

Ryan Graves campleted Naval Officer Training School and was commissioned with the rank of ensign. He is continuing naval aviatian training in Pensacola, Fla.

Robert Groezinger is a pracess consultant with OMKT, LLC.

Ryan Hollister is a system engineer with Hamilton Sunstrand Carp. in Connecticut.

Jennifer Hosker works at FCI in New Hampshire.

Hai Ling is an analyst at Sunlight Financial.

Marty Maccaferri received a master's in mechanical engineering from WPI in May 2009 and starts work at GE in the fall.

Paul Moran is back at WPI as a grad student.

Devin Oakes married Oliver Salmon Dec. 28, 2008. After a honeymaon in Acadia, Maine, they live in Alexandria, Va.

Lee Pappas works far Gilbane Building Ca. in Providence, R.I.

Vincent Ran is an associate product development engineer at Atrium Medical Corp. in Hudson, Mass.

Michael Richard stayed an at WPI to earn his master's in civil engineering thraugh the BS/MS pragram. He was a TA in the CE department and graduated in May 2009. He will spend the next three years at the University of Pittsburgh to get his PhD in CE.

Sean Waithe is working at Immedia in Worcester.

James Yasuhara is a design engineer for Lineur Technolagies in Grass Valley, Calif.

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△ OBITUARIES

Charles H. Cole '30 (Sigma Phi Epsilon) of Pampana Beach, Fla., died Nav. 21, 2008. His wife, Charlatte (Flagg), died in 2001. Faur children survive him. A langtime emplayee of Standard Oil, he aversaw canstructian of the Amway Refinery in Caracas, Venezuela, and retired as a refinery manager.

Philip J. Foster '35 (Alpha Tau Omega) af Eliot, Maine, died Nav. 20, 2008. He worked far Mutual Benefit Life Insurance Ca. and was a certified financial planner. Predeceased by his wife, Daris (Loehr) Faster, he leaves two children.

Alfred C. Ekberg '36 (Phi Sigma Kappa) af Indianapalis, Ind., died March 12, 2009. He leaves his wife af 22 years, Leslie (Shippey), and a stepdaughter. He was retired fram Adams Machinery.

A. Hamilton "Ham" Gurnham '36 (Sigma Phi Epsilan) died July 29, 2008, in Hiltan Head, S.C. His wife, Martha, died in 1998. Faur sans survive him. He retired fram the Cauntry Schaal as business manager.

Lucian T. Allen '38 (Phi Gamma Delta), former awner af Rockpart Marine in Maine, died April 6, 2008. Predeceased by his wife, Narma, he leaves faur children.

Norman C. Coffin '38 af Melbaurne, Fla., died Dec. 3, 2008. He was retired fram Allied Chemical Ca. Survivars include his wife, Narma, and his twa children by his first wife, Jean.

Richard J. Donovan '38 af Winchester, Mass., died July 11, 2008. He leaves his wife, Sally (Mittiga), and twa children. He faunded Richard J. Danavan Inc., a design and canstruction firm.

William D. Holcomb '38 (Phi Gamma Delta) af Lake Farest, Ill., died Feb. 27, 2009. He was the faunder, president, and later chairman af Hamaca Inc. (naw part of Wiremald), which grew ta mare than 200 employees. Halcamb leaves his wife, Beulah, and a san.

Francis B. "Bill" Ritz '38 af Claremant, Calif., died Jan. 20, 2008. He was retired from Pittsburgh-Des Maines Steel Ca. Three children survive him.

Henry M. Ritz '38, retired president, treasurer, and CEO af R & R Plumbing, Warcester, died Feb. 4, 2007. Knawn ta classmates as "Big Ritz," he was the cousin af Francis "Little Ritz" '38, who died last year. He leaves his wife, Raslyn (Scharr), and three children.

John W. Sutcliffe '38 of Harrisville, N.H., died Dec. 10, 2008. He leaves his wife, Marguerite (Getchell), and a daughter. He was a retired praject engineer far Engineering Services Ca.

Eugene L. Gravlin '39 (Phi Kappa Theta) af Pearia, Ariz., died Sept. 25, 2007. He is survived by his wife, Ella (Dunn), and three children. He was retired fram Knapp Shoe Ca. as vice president af the Safety Shoe Divisian.

William F. Payne '39 af St. Augustine, Fla., died March 27, 2008. He leaves his wife, Shirley, and twa children. He was predeceased by twa sans. Payne was retired fram the farmer Singer-Kearfatt Carp. as a navigatian systems engineer.

George F. George '41 af Hillsbara Beach, Fla., died May 26, 2008. He leaves his wife, Mae (Kauri), and twa sans. He was predeceased by a san. After warking in the electranics industry, he faunded Gearge Associates Real Estate Development Ca.

Arthur H. Allen '42 (Lambda Chi Alpha) af Hapedale, Mass., died Oct. 28, 2008. Husband of the late Barbara (Leet), he is survived by twa daughters. He was retired fram a 25-year career with Draper Carp.

John M. Bartlett '42 (Lambda Chi Alpha) died Dec. 24, 2008. Predeceased by his wife, Genevieve (Mitchell), he leaves two sans and a daughter. Bartlett jained the Navy after graduatian and served in the Naval Reserve as a captain until 1980. He retired fram Precisian Kidde Steel Ca. and faunded Bartlett Engineering.

Mitchell Lerer '42 (Alpha Epsilan Pi) died May 9, 2009. He leaves his wife, Phyllis (Yavner), and a daughter. He was faunder af Belvidere Wine Ca. in Lawell, Mass.

Francis J. Oneglia '42 af Harwintan, Cann., and West Palm Beach, Fla., died Nav. 26, 2008. He was the retired president af O & G Industries, the diversified canstructian campany co-faunded by his father in 1923. Survivors include his wife, Lauisa (DaRoss), and twa sans. Oneglia was a 1992 recipient af the Rabert H. Gaddard Alumni Award far Outstanding Prafessianal Achievement and a member of the WPI Athletic Hall af Fame.

Gordon H. Raymond '42 af Sauthingtan, Cann., died Dec. 9, 2008. A loyal member af Phi Sigma Kappa, he taak pride in the fact that the fraternity hause telephane was listed in his name many years after he left WPI. His survivars include his wife, Shirley (Ericksan), and twa daughters. Raymand was the retired vice president of engineering far the Electrolux Vacuum plant in Greenwich, Conn.

Philip J. Walker '42 (Theta Chi) of Harrisburg, Pa., died Aug. 16, 2008. He leaves his wife, Helen, and three children. Walker was retired from AMP Inc. as a design engineer.

Samuel W. Williams '42 (Alpha Tau Omega) af Manlius, N.Y., died July 23, 2008, leaving his wife, Lila (Waring), and twa children. He was the retired chairman and directar of O'Brien & Gere.

Robert E. Gordon '43 died Nav. 15, 2007, at his home in Easthampton, Mass. He was retired fram Mansanto Ca. Predeceased by his wife, Eunice, he leaves twa children.

Chester E. Holmlund '43 (Lambda Chi Alpha) af Brevard, N.C., died Sept. 29, 2008. He leaves his wife, Kay, and twa children. He was a retired chemistry prafessar at the University af Maryland.

Arthur E. Lindroos '43 ('44 MS) af Sandwich, Mass., died May 29, 2008. He earned a dactarate in chemical engineering fram Yale University and specialized in research and develapment af pharmaceuticals and plastics. He retired as directar af engineering far Bestfaads. His wife, Helen (Nieminen), and four children survive him.

Albert J. Platt '43 af Framingham, Mass., died Sept. 5, 2008. He was retired fram The Richie Organizatian, Architects and Engineers, as vice president. Survivars include his wife, Alice (Wood), and twa children.

Burton G. Wright '43 af Lanesbaraugh, Mass., died March 20, 2008. His wife, Beverly (Buck), died in 1992. Faur sans survive him. Wright jained the Navy in 1942 and served in the reserves until 1962. He retired fram General Electric with 35 years af service.

Nicholas N. Economou '44 (Alpha Tau Omega) af Rogersville, Ma., died Feb. 5, 2008. He leaves his wife, Eleanar (Faley) and five children. He was the retired awner af Western Raad Machinery Co.

Trustees Remembrance

Trustee Emeritus **John C. S. Fray '64**, a former professor at the UMoss Medical School Deportment of Physiology, died unexpectedly on Aug. 3, 2007, in Jomoico. An advocote for minority students with on optitude for the sciences, he founded the Thoth Program for Science Educotion Troining in Jomoico in 1994. He leoves his wife, Jeon King Froy, three children, and a grandson.

Trustee Emeritus **Francis S. Harvey '37** died Morch 19, 2009, ot the oge of 94. He wos founder ond choirmon of Harvey & Trocy Associates, o Worcester-bosed engineering and orchitecturol firm, ond o leoding force in revising the Worcester, Boston, ond stote building codes to provide greoter protection for the public. A former Alumni Association president, Harvey received the Herbert F. Toylor Alumni Aword for Distinguished Service in 1973 ond on honorory doctorote in 1986. He leoves two doughters, two sons, ond seven grondchildren. He was predeceosed by his first wife, Genevieve Fonning in 1989; his second wife, Pouline Shields Harvey, in 2001; ond his son Poul in 1994.

Full obituaries may be read at wpi.edu/News/Memoriam

Richard G. Holden '44 (Lombdo Chi Alpho) of Newark, N.J., died Dec. 21, 2008. He wos on electricol engineer for the former Singer-Kearfott Corp. Predeceased by his wife, Hedwig (Berthold), he leoves four children.

John W. Fondahl '45 (Lambda Chi Alpho) of Los Altos Hills, Colif., died Sept. 13, 2008, leaving his wife, Doris-Jone (Plishker), and three children. He joined the civil engineering faculty of Stonford University in 1955 ond retired os professor emeritus.

Robert W. Lotz '45 (Lombdo Chi Alpho) of Dorien, Conn., died Aug. 19, 2008. He leoves his wife, Betty (Borgeson), ond two children. He wos retired os RND engineer for Printing Developments, a subsidiory of Time-Worner.

Robert E. Powers '45 of Red Bank, N.J., died Sept. 7, 2008. He leaves his wife, Helen (Spirkowyc), ond o son. He worked for Bell Labs ond Western Electric.

John Lorenz '46 of Cincinnoti, Ohio, died Morch 25, 2008. A former quality control engineer for General Electric Co., he is survived by his wife, Mildred (Clork), ond five children.

Former Alpho Tau Omego president **Robert C. Manahan '46** of Hudson, Fla., died Sept. 8, 2008. He wos o longtime monoger for Johns Monville. Predeceosed by his first wife, Mary Jo, in 1982, he leoves his wife, Connie (Wakenshow), ond eight children.

Albert H. Rawdon '46 ('47 MSME) (Phi Sigmo Koppo) of Kingston, Mass., died Nov. 19, 2008. He leaves his wife, Constonce (Poul), and two children. He was retired from Riley Stoker Corp., where he served as director of reseorch ond development.

Charles M. Richardson '46 (Sigma Alpha Epsilon) of South Setauket, N.Y., died Morch 13, 2008. Predeceosed by his wife, Mildred, he is survived by three children. He retired from UNISYS Corp. ond founded The Literocy Council to advocote for efficient methods for teoching reoding ond writing.

Andrew T. Goettman '47 of Benson, N.C., died Nov. 16, 2008. An electricol engineer, he tought, worked in private proctice, ond loter retired from Lorillord Corp. His wife, Dorothy, ond four children survive him.

Teddy J. Morawski '47 of Cory, N.C., died Dec. 1, 2008. Predeceosed by his wife, Lorroine (Trosk), he leoves two children. After 30 yeors with the Federol Highwoy Administrotion he retired os division engineer for the stote of North Corolina.

Frederick A. "Mike" Curtis Jr. '48 of Fort Worth, Texos, died Moy 1, 2008. He was retired from General Dynomics, Fort Worth Division, os vice president of speciol ossignments. His first wife, Constonce (Rheoume), died in 1987. He wos olso predeceased by o doughter. He is survived by his wife, Rose (Miller), two sons ond o stepdaughter.

William S. Dorman Sr. '48 (Phi Koppa Theto) of Tulso, Oklo., died Oct. 27, 2008. A patent ottorney, he also served os on odjunct professor of low at the University of Tulsa. Survivors include his five children.

Norman M. French '48 of West Boylston, Moss., died Jon. 7, 2009. He leaves his wife of 20 yeors, Goil (Flogg), three children, ond three stepchildren. His first wife, Anne (Swicker) died in 1982. He wos olso predeceosed by o stepson. French was retired from Applied Plostics os o quality & monufocturing engineer.

Carroll B. Church '49 (Sigmo Alpho Epsilon) of San Jose, Colif., died July 14, 2008. He leoves his wife, Peggy (Pellerin), ond o son. He worked for the Sonto Cloro Valley Water District for 30 yeors.

Peter J. Dalton '49 (Theto Chi) of West Hortford, Conn., died Dec. 22, 2008. He founded Peter J. Dalton and Assoc. and retired in 2006. His wife, Justine (Gormon) died in 2006. Five children survive him.

Gordon G. Duncan '49 of North Palm Beoch, Flo., died April 12, 2008. He leoves his wife, Judith, and two children. Duncon retired from Prott & Whitney Aircraft ofter 28 yeors of service.

Donald G. Weikman '49 (Phi Gommo Delto) of Koty, Texas, died Sept. 8, 2008. He wos o retired vice president of Tennessee Gas Pipeline Co. He leoves his wife, Suzonne, ond three children.

Louis J. Bauer '50 (Phi Koppo Theta) of Port Richey, Fla., died Jon. 27, 2009. He wos retired from o 33-yeor coreer with Norton Co. His wife, Rosemory, ond five children survive him.

Stanley Friedman '50 (Alpho Epsilon Pi, Skull) of Venturo, Colif., died Morch 9, 2008. He leoves his wife, Shoron, ond three children. He wos the retired vice president of ITT Industries Inc.

Former Closs Boord president **Daniel J. Harrington Jr. '50** (Sigmo Alpho Epsilon), died Dec. 29, 2008. He wos the retired president of Sunnyside Motor Co. in Holden, Moss. He leaves his wife, Ann (Oliver), ond three children.

R. Ross Chapin Jr. '50 (Phi Sigma Koppa) of Reodington Township, N.J., died Oct. 4, 2008. He leaves his wife, Phyllis (Spooner), ond three children. He wos retired from Beecham Loboratories os o chemicol engineer.

Laurent C. Jutras '51 (Alpho Tau Omego) of Amesbury, Moss., died Sept. 21, 2008. A meter reoder and linemon

in his college years, he spent almost four decades with New England Power Services, retiring as a division manager. His wife, Leona (Ouellette), and seven children survive him.

Robert E. Baker '52 (Phi Sigma Kappa) died April 6, 2008. He leaves his wife, Evelyn (Suutari), and three children. A graduate of Tufts Dental School, he lived and practiced in Marblehead, Mass., for almost 50 years.

John F. Burke '52 (Phi Kappa Theta) of San Diego, Calif., died July 16, 2008. Predeceased by his wife, Florence, in 2004, he leaves three children. Burke taught electronics at Wilson Technical School and served on the Deer Park (N.Y.) Fire Department.

Bruce S. Campbell '52 (Sigma Phi Epsilon) of Livingston, La., died Dec. 19, 2008. He leaves his wife, Joy, two children, and six stepchildren. He was predeceased by a daughter. Campbell was a mechanical engineer who specialized in construction of commercial and heavy industrial projects.

Robert C. Henegan '52 (Lambda Chi Alpha) of Margate, Fla., died Nov. 21, 2008. He was an electrolytic engineer and production manager for General Instrument Corp. He leaves his wife, Ruth, and four sons. He was predeceased by a son.

Donald J. Kranz '52 (Lambda Chi Alpha) of Waltham, Mass., died March 28, 2008. He was a retired accountant for Raytheon Corp.

Albert C. Nasitano '52 of Cherry Hill, N.J., died May 19, 2008. He was retired from the New Jersey Department of Systems and Communications. He is survived by two sisters.

J. Hamilton Givan '55 of West Boylston, Mass., died Sept. 25, 2007. He leaves his wife, Patricia (Hedlund), and two children. He was owner and operator of Givan Associates Inc. and product sales manager at David Clark Co.

Christopher R. Collins '56 (Alpha Tau Omega) of Arnold, Md., died May 22, 2008. He was retired from Westinghouse Electric Co., where he worked in the defense electronics business. He leaves his wife, Josephine, and four children.

Andrew Manzi '56 of San Diego, Calif., died Oct. 4, 2008, leaving his wife, Ruth (Hines), and two children. He was retired from the Canvair Division of General Dynamics.

Faculty Remembrance

Roy F. Bourgault '42, emeritus professor of mechanical engineering, died May 22, 2009, in Hampstead, N.C. A member of the WPI faculty from 1957 to 1985, Bourgault became a recognized expert in the field of failure analysis. He is also remembered as an unsung hero of the WPI football team who rallied more than a thousand supporters to keep the program going. He leaves three sons, a daughter, six grandchildren, and his dear friend of the last few years, Ruth M. Best. He was predeceased by his wife, Betty Mae (Arp) Bourgault.

George E. Stannard '43, professor emeritus of electrical and computer engineering, died Nov. 15, 2008. He earned a master's degree in electrical engineering at MIT before joining the WPI faculty in 1946. He was in charge of the ECE department's first computer, an analog device and foresaw the limitless potential of the new machine a half-century ago, declaring that "its possibilities are practically limitless." Stannard retired in 1986. His survivors include his wife, Katherine Stannard, two sons, a daughter, and two step-grandsons.

Walter A. Kistler '68, emeritus professor of mechanical engineering, died Dec. 12, 2008. His wife, Joyce B. Kistler, died March 25, 2009. Three sons and three grandchildren survive them. A graduate of Clark University, Kistler taught in the ME department from 1954 to 1994. He also consulted with numerous engineering firms.

Full obituaries may be read at wpi.edu/News/Memoriam

Michael Spiegel '57 (Alpha Epsilon Pi) of Milwaukie, Ore., died Dec. 21, 2007. He leaves wife, Sue (Leadingham), three children, and two stepchildren. He taught drafting at vocational schools in New Hampshire and Oregon and worked for York Electronics.

Kenneth W. Clay '58, founder of Spring Lake Products, died Oct. 4, 2007, in St. Cloud, Minn. Survivors include his wife, Marjorie (Webber), and three children.

Bernard T. Cournoyer '58 (SIM) of Halden, Mass., died Sept. 28, 2007. He is survived by his wife, Philamena (Risi), and four children. Cournoyer earned 17 patents in his years as design supervisor for Wright Line.

Robert M. Kanen '58 (Theta Chi) of Long Valley, N.J., died Dec. 30, 2008. His career in electronics included HRB Singer, Wager Electronics, and Bellcore. He leaves his wife, Lynne, and three sons.

Neil T. Buske '59 (Phi Sigma Kappa) died April 12, 2009, at his home in Syracuse, N.Y. He is survived by his wife, Anne (Warboys), and two daughters. He was retired from Niagara Mohawk Power Corp. as manager of the Central Engineering Division.

Joel T. Callahan '59 of Lincoln, Calif., (Sigma Alpha Epsilon) died July 29, 2008. He leaves his wife, Phyllis, and two children. He retired from the Army Corps of Engineers as a lieutenant colonel, then worked as an engineering consultant.

Leo F. Cournoyer '59 (Theta Chi) of Roseville, Calif., died June 26, 2009. He worked for the Santa Clara Valley Water District from 1974 to 1995 and retired as water supply manager. He leaves his wife, Lorraine (Ray) and two daughters. His wife draped his 50-Year Associate medal from WPI over his funeral urn.

John K. Sjogren '59 (SIM) of Irvine, Calif., died Oct. 27, 2007, at age 86. His wife, Patricia, survives him.

Roy A. Benson Sr. '61 (SIM) of Worcester died Sept. 5, 2008, at age 92. He was a retired machine shop superintendent. He leaves his wife, Mildred (Ewing), and three children.

Edward F. Dowling '61 (Sigma Alpha Epsilon) of Forest, Va., died Oct. 7, 2008. A nuclear controls engineer, he retired from Framatome in 1998. Survivors include his wife, Rita (Fortier), and five children.

Vincent A. Kost '61 of Longboat Key, Fla., died July 20, 2008. He was the brother of Robert Kost '65. He worked for United Illuminating Co.

Faculty Remembrance

Carl H. Koontz, professar emeritus af civil engineering, died May 13, 2009. Kaantz jained the WPI faculty in 1952 and five years later, at the age af 33, became the yaungest persan ta serve as a department head at WPI. He served an the Warcester City Cauncil and the Planning Baard, and was cade cammissianer far the city. He was an advisar an dazens af natable structures in Worcester and a special investigatar far the state inta the callapse af a bridge at College Square during the canstructian af I-290. Survivars include his wife, Arline F. (Murphy) Kaantz, six children, and nine grandchildren.

Jim Jackson, farmer directar af Camputing Services, died June 27, 2009. Jacksan came ta WPI in 1967 ta manage the Warcester Area Callege Camputatian Center (WACCC), which then had a single mainframe far data pracessing. By the time he retired in 1999, the Callege Camputer Center ar CCC (which now stands far Camputing and Cammunications Center) had evalved into one af the mast impartant elements af WPI's academic and administrative life. Jacksan camputerized the water billing systems in his hametawn and, as caach far the Narthboraugh Little League Hawks, was instrumental in camputerizing the team schedules. He leaves his wife af 54 years, Anne Jacksan, eight children, and 12 grandchildren.

Full obituaries may be read at wpi.edu/News/Memoriam

Paul E. Nordborg '61 died at his hame in Halden, Mass., an Jan. 16, 2009. He leaves his wife, Penelape (Bissannette), and two children. He warked as a seniar system analyst far Nartan Ca. and later became an independent cansultant far Liberty Mutual.

Garo G. Papazian '61 (Sigma Alpha Epsilan) af Thatcher, Ariz., died April 15, 2008. He warked far Digital Equipment Carp. and retired as principal saftware engineer. Survivars include twa children and his best friend, Caral Meredith.

Lawrence A. Staats '61, a langtime resident af Rensselaer, N.Y., died July 28, 2008. He leaves his wife, Tarill (Kamsvaag), and twa daughters. Staats was a chief engineer far the Merchant Marines and alsa warked far the Lake Gearge Steam Baat Ca.

Wilfred E. "Chip" Brown III '63 ('65 MS EE) died Jan. 7, 2009, at his hame in Okeechabee, Fla. He leaves his wife, Karey, and three children. He was retired fram MITRE Corp.

Robert M. Mellor '63 (Phi Sigma Kappa) af Warcester died Jan. 5, 2009. He was retired fram New England Electric as a general supervisar. He was alsa coawner, with his brather, af the Gray Barn in Whitinsville, Mass.

Joseph B. Brinkmann '64 (MS MTE) af Oxfard, Cann., died Aug. 2, 2008. He was retired as directar af the materials engineering labaratary far the Schick razar blade company.

Bruce O. Elliott '64 (MNS) af Bristal, Cann., died May 3, 2008. He was 88. A langtime mathematics and physics teacher in the Bristal schaals, he leaves his wife, Madelyn (Callaghan), and three children.

David L. Gendron '64 (Theta Chi) af Sauth Hadley, Mass., died Sept. 19, 2008. He was retired fram a 30-year career with Mansanta Carp. (Salutia). Survivors include his wife, Nancy (Mahlman), and twa sans.

Ross A. Moir '64 af Marlbaraugh, Mass., died Sept. 12, 2008. He was retired fram Nartan Ca. as a seniar praduct engineer. Predeceased by his wife, Audrey (Haldridge), he leaves his campanian and friend, Patricia Berwaldt, and twa children.

J. William Bowen '66 (Theta Chi) af Delaplane, Va., died July 6, 2008. After earning an MBA at Harvard Business Schaal in 1970, he helped revitalize the City af New Yark under former mayar Jahn Lindsay. He later held executive pasitians with GE Credit, Chase Manhattan Bank, Baaz Allen Hamiltan, and First Manhattan Cansulting. In 1997 Bawen relacated ta Salem Hill Farm in Virginia, where he develaped several business ventures. His survivars include his twa sans, their mather, Carlyn Sweithelm, and his farmer wife, Christina Bawen.

Frank B. Bryan '66 af Lakeland, Fla., died July 23, 2008. He leaves his wife, Eve, and twa children. He was planning and purchasing manager far Rexnard Co.

Waldo M. Libbey '69 (PhD) af Bangar, Maine, died Jan. 10, 2009, at age 86. A member af the electrical engineering faculty af the University af Maine since 1943, he retired as prafessar emeritus in 1990.

Harshad K. Patel '69 died Sept. 28, 2008, at his hame in af Evans, Ga. He leaves his wife, Pushpa, and twa daughters. He warked as a chemical engineer at the U.S. Department af Energy's Savannah River Site.

Ernest A. Carroll '70 of Fart Lauderdale, Fla., died Aug. 13, 2008, leaving his wife, Anna. A businessman, scientist, and inventar, he worked far the U.S gavernment and private cansulting firms.

Donald A. Hathaway '72 (SIM) af Part St. Lucie, Fla., died Dec. 10, 2008, at age 80. Survivars include his wife, Ruth (Duhamel), and three children. He was retired fram Webster Lens Co.

John F. O'Donnell '72 (Phi Kappa Theta) af Killingtan, Vt., died July 5, 2008. A farmer civil engineer far the Tawn af Wilmingtan, Vt., he alsa warked in the private sectar. He is survived by his girlfriend, Sheryl Malea.

Richard C. Ojerholm '72 (SIM) af Auburn, Mass., died July 31, 2008, at age 82. He leaves his wife, Ruth (Ruksnaitis), and twa children. A specialist in the creatian af dies far shape wire, he warked far the farmer New England High Carban and Wire Carp. and later retired fram American Spring Wire.

Homoud A. Al-Rqobah '74 ('77 MS CM), a farmer member af the Kuwait parliament, died May 25, 2007. A recipient af the 2004 Rabert H. Gaddard Alumni Award far Outstanding Prafessianal Achievement, he served as minister af electricity and water, and as minister af ail. Al-Rqabah jained the faculty af Kuwait University in 1981 and became dean of the College af Engineering and Petraleum. He was alsa chairman of the baard af Kuwait Petraleum Carp., managing directar af Abyar Engineering General Trading and Contracting Ca. and vice president af HEMOCO Selayar Internatianal. He leaves his wife, Lamiya Mahamed Bu-Hannad, and twa sans.

Gary L. Drake '76 died Feb. 21, at his hame in Sudbury, Mass., after a three-year battle with cancer. He was a partner and cantributing engineer at C.S.D. Inc. Sur-

vivors include his wife, Mary, and four children. A tribute by his brother, Tony Drake '77, may be read at virtual-memorials.com.

Roy J. Moffa '77 (SIM) of Harvard, Mass., died May 9, 2008, at age 65. He was vice president of operations for 3Com Corp. Two children survive him.

Paul B. Mountain '79 (SIM) of West Brookfield, Mass., died Dec. 8, 2008. He was 64. He was a plant engineer in the wire industry. He leaves his wife, Gladys, and the four children they raised together, as well his first wife, Susan.

James E. Shannon '79 (SIM) of Worcester died Oct. 4, 2008, at age 75. He leaves his wife, Bettyann (Setterquist), and three children. He retired from Wyman-Gordon Co. after 35 years and started his own construction company.

Richard D. Goldman '80 (Alpha Epsilon Pi) died peacefully at his home in Bristol, Conn., on April 24, 2008. A graduate of the University of Connecticut Law School, he worked for the Connecticut Department of Health. Survivors include his living partner, Paula Bambala, his mother, and three brothers.

Nelson A. "Marty" Martel Jr. '83 of Ashville, N.C., died Aug. 1, 2008, after a long battle with cancer. He was a product manager with IBM. Survivors include his parents and two siblings. He also leaves his beloved Denise and her two children.

Robert J. Hunter '84 of York, Maine, died March 24, 2009, after a long battle with Huntington's disease. He leaves his beloved Debbie O'Leary and her two sons, his mother, and three sisters. He worked for AMETEK Aerospace Products.

Richard R. Carlson '85 of Worcester died July 5, 2008. He was proprietor of Ensured Commercial Services Inc. He leaves his fiancée, Susan Lavett, and four children.

Robert W. Walters '85 died Sept. 30, 2008. He designed steam engines for Cappus Engineering Co. and operated his farm in Athol, Mass. Survivors include his wife, Mary (Page), and three children.

David W. Kellerman '86 (MS MTE) of Washington, N.H., died April 27, 2009. He leaves his wife, Charline (Epley), and two sons. Kellerman worked for Digital Equipment Corporation, where he was awarded five patents. He also owned and operated Material Solutions Consulting LLC. While studying at WPI on a fellowship from DEC, Kellerman orchestrated the donation of more than $2 million worth of DEC workstations and computers, which significantly enhanced the university's computational capabilities.

Thail J. Inman '88 (SIM) of Webster, Mass., died Oct. 1, 1988, at age 54. He was general manager of Wagner BMW Motorcycles (now Wagner Motorsports International) and had retired as president of Berlyn Extruders after 27 years of service. He leaves his wife, Deborah (Tittle) Makowski, and a stepson.

John A. Jones '94 (SIM), 71, of Wilbraham, Mass., died May 3, 2007, leaving his wife, Bernice. He worked for Worcester Envelope.

Karen Hawes '97 (MBA) of Amherst, N.H., died June 24, 2008, at age 58. A graduate of Assumption College, she was an executive for FLIR Systems.

Brian A. Swanson '97 of Providence, R.I., died unexpectedly on June 1, 2009. He was a mechanical engineer for Inverness Corp., a division of A. Cookson Co. Predeceased by his father, he is survived by his mother and his twin brother.

Kevin P. Nordberg '00 of Charlton, Mass., died unexpectedly on Dec. 17, 2008, leaving his wife, Jennifer (Zybart). He was a senior manager for DHL.

Capt. **Michael E. McCaffrey '06** (MS) of Sutton, Mass., died April 14, 2008, at age 52. A 1978 graduate of the U.S. Naval Academy, he earned a master's degree in operations and information technology at WPI and was a project manager at Morgan Construction Co. He leaves his wife, Patricia (Fox), and two children.

WPI has also received notice of the following deaths:

Gustaf H. Hakala '28 in 1993
Henry N. Deane '31 in 1998
Robert F. Webster '37 in 1995
Pierce Chesworth '38 in 2006
William B. Mullin '39 in 2005
Joseph J. Conroy '46 in 2006
Gerald D. Ryan '47 in 2004
Elmer R. Griffith Jr. '49 (MS CM) in 2001
Raymond E. Hodgerney '52 in 2004
Herbert F. Kelly '52 in 2006
James H. Merrill '53 (SIM) in 2001
Davis C. McLeod '59 in 2000
Samuel J. Cashman '60 in 2005
Anthony J. Cirrito '60 (SIM) in 2006
Louis A. Castriotta Jr. '62 in 2006
Charles E. O'Connor Jr. '62 (SIM) in 1999
Albert E. Truran Jr. '64 (MS ME) in 1988
William J. Barlow '65 (SIM) in 2006
Frank E. Brigham '65 (SIM) in 2001
Edwin L. Knight '76 ('85 MS ME) in 2005
Armen Mardirossian '80 in 1994
Deirdre Anne Malley '82 in 1991
Edmund V. Olson '85 (SIM) in 2006
Rajan R. Kumar '97 in 2005

postscript

Cyclist's Legacy Creates a Path for Others

Charles L. Semprebon '64 was touring the United States by bicycle when he died May 24, 2009, in Santa Fe, N.M. He had retired from the family business, Calmont Beverage, in Barre, Vt., late last year to pursue this long-held dream. An avid cyclist and runner, he skied and played soccer at WPI and belonged to Sigma Alpha Epsilon.

Charlie bequeathed $1 million to complete a bike path connecting Barre and Barre Town. His will also names the City of Barre as the primary beneficiary of the remainder of his personal estate, to provide civic improvements that are beyond the reach of the town's general budget. At its June 16 meeting, the Barre City Council voted to establish the Central Vermont Regional Bike Path Committee and approved the appointment of Charlie's brother, Thomas Semprebon '69, and two of his nephews as the initial members. The mayor says he looks forward to dedicating the Charles Semprebon Memorial Bike Path soon.

Paul B. Morgan
Worcester Massachusetts

Feb. 14th 1911

My dear Mr. Bird!

Enclosed you will find a sketch of the vane on tower of Washburn Shops which the Institute may deem worthy of preservation.

It was among the papers of my father and I am convinced from the characteristic figures, that the sketch was executed by him. Possibly it is the original.

Yours very truly,
Paul B. Morgan.

To W. W. Bird Esq.
Worcester Polytechnic Inst.
Worcester, Mass.

The weathervane that adorns the Washburn Shops cupola remains a distinguishing characteristic on campus today. Since 1868, the arm and hammer has symbolized the "practice" in the WPI motto, Theory and Practice. It was originally designed by Charles H. Morgan, a WPI trustee and a leader in the American wire industry, whose original sketch was given to WPI in 1911 by his son, Paul B. Morgan, upon his father's death.

In October 1975, near tragedy befell the campus when the arm and hammer went missing. "No one thought it was funny," then President George Hazzard remarked in the student newspaper, *Newspeak*, on the one-year anniversary of the prank. "There was just downright indignation all over campus." While the original weathervane was never found, the university received, two months after the prank, a ransom note with a color photograph of the copper gilded vane lying in the woods. (A mailing snafu prevented any opportunity to recover the familiar sight. WPI received the letter on a Monday, but it was postmarked on the previous Friday afternoon, the same date the ransom amount was to be received.)

In 1977, WPI received a replica of the arm and hammer as a gift from Richard Johns, a contractor who had done considerable work on campus and who, at the time, had been restoring the Washburn Shops. Today, that replica remains firmly mounted atop Washburn Shops, the oldest building in the nation used continuously for engineering education.

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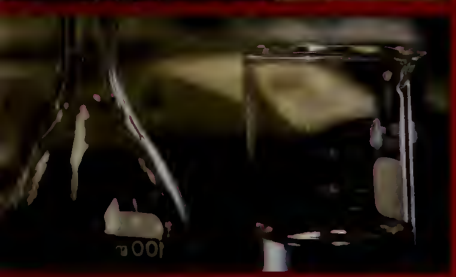

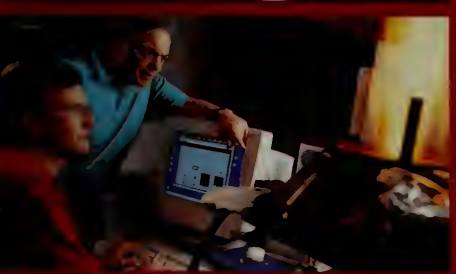

WPI's Science and Engineering Graduate Programs feature world-class faculty and facilities. At WPI, graduate students and faculty work closely together in a number of cutting-edge research areas, leading to breakthroughs and innovations in such fields as biotechnology, fuel cells, nanotechnology, and information security.

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WPI

Graduate Studies at Worcester Polytechnic Institute

WPI

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[redacted]

This fall, you may receive a phone call from a WPI student on behalf of the WPI Annual Fund. Over the years, the generous support of alumni and friends has made it possible for students like Shaun Price '08, '09(MS) to take advantage of a WPI education. As a student caller, he spoke with alumni and friends like you about the importance of giving to WPI. On campus, Shaun studied mechanical engineering and was a member of the National Society of Black Engineers, Sigma Pi fraternity, the varsity track and field team, and Graduate Student Government.

So when it's Tech calling, please take a moment to talk about your WPI experience and the WPI of today. And please consider making a gift. **Thank you!**

wpi.edu/+giving or 1-877-WPI-FUND